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The overarching purpose of the research was to examine workplace bullying among nurses who work in North Carolina hospital. The research examines the influence of individual factors, individual characteristics and organization factors on physical health, mental health and intent to leave position in nurses who were bullied. In particular, this study explored the influence of resilience on physical health, mental health and intent to leave in nurses who have experienced bullying.

In this sample, 64 of 160 (40%) of nurses experienced workplace bullying. Linear regression analysis indicated nurses who are bullied have a lower average scores in mental health measures ($p < 0.001$), and are more likely to leave their unit ($p < 0.001$). Multiple regression models revealed that nurses who experienced severe bullying and had high levels of resilience their intention to leave their unit was elevated as compared to others. The mediation results from the path analysis using *Mplus* revealed resilience was not a mediator of bullying on physical health, mental health or intent to leave.

DOES RESILIENCE MEDIATE THE EFFECTS OF BULLYING IN NURSES?

by

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Approved by

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This work is dedicated to my husband Keith, our daughter Michelle, and nurses everywhere.

APPROVAL PAGE

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CHAPTER I

INTRODUCTION

Nursing is an honored and respected profession. Nursing professionals have consistently been recognized by the public as having the highest degree of honesty and ethics for the past decade (Gallup, 2012). What the public does not know is that nursing has a darker side: bullying among nurses. Nurse on nurse bullying has occurred in the nursing profession for many years. Over 25 years ago, Meissner (1986) wrote “*Nurses, are we eating our young?*” to highlight the hostility that exists between nurses in the workplace. Since 1986, researchers have confirmed that nurses are bullied and that bullying takes a toll on nurses and in turn, patients, and the quality of care. Bullying is detrimental to the work environment (Einarsen, Hoel, Zapf, & Cooper, 2011), the victims’ health (Namie, 2012) and patient outcomes (Longo, 2012). To date, a reliable and affective method to eliminate bullying in the workplace has not been found (Einarsen et al., 2011). Because prevention has not been successful, it is important to explore other ways victims can be protected from the devastating effects of bullying.

Bullying is unacceptable among professionals, yet it still occurs with surprising regularity. Researchers have found that the consequences of bullying behaviors on patients, nurses, and the nursing profession are substantial (Longo, 2012). Nurses who are bullied have higher levels of stress (Magnavita & Heponiemi, 2011; Walrath, Dang, & Nyberg, 2010), depression (Yildirim, 2009), and anxiety (Pai & Lee, 2011; Vessey,

Demarco, Gaffney, & Budin, 2009). Bullied nurses often plan on leaving their position or perhaps the profession (Houshmand, O'Reilly, Robinson, & Wolff, 2012). There have been many recommendations on how to eliminate bullying in the nursing workplace, but these measures will take time to implement and longer still to change the workplace culture (Longo, 2012). It is not enough to focus on decreasing workplace bullying, it is critical a means to protect victims from the negative mental and physical effects of bullying is found. Some nurses are more affected by the exposure to bullying behaviors than others nurses. Resilience may be the factor that allows some nurses who are exposed to work place bullying to avoid the devastating effects to their mental and physical health.

Bullying behavior is often thought of as occurring among school age children (Department of Health and Human Services [DHHS], 2012; Longo, 2012). However, bullying behaviors are also evident among adults. Among adults, bullying is usually manifested as workplace violence (Einarsen et al., 2011). Workplace violence (WPV) is a global problem that has been recognized in many countries and within a variety of occupations (Einarsen et al., 2011). WPV encompasses an assortment of behaviors including physical violence, verbal abuse, and psychological abuse (University of Iowa Injury Prevention Research Center [IPRC], 2001). Within the United States Department of Labor branch: Occupational Safety and Health Administration (OSHA) is responsible for workers safety (OSHA, 2011). The National Institute for Occupational Safety and Health (NIOSH) provides leadership in preventing workplace illness and injuries (CDC, 2013). The NIOSH (2002) definition of WPV “violent acts directed toward persons at

work or on duty”, is intentionally broad to include many different behaviors. The definitions of WPV used by leading organizations is broad too. Therefore, a clear conceptualization and definition of WPV is needed to advance the science.

Types of Workplace Violence

The WPV constructs describes a wide range of behaviors which vary from a robbery at a liquor store, to an employee entering a workplace and killing colleagues, or disruptive behaviors in the workplace such as verbal and psychological abuse (OSHA, 2011). The variety and range of behaviors included in WPV is vast. To understand WPV it is important to distinguish between the types of workplace violence. The University of Iowa Injury Prevention Research Center (IPRC) developed a scale that is used to differentiate between the types of WPV. The IPRC scale is frequently used in the literature to distinguish between the types of workplace violence (IPRC, 2001; Longo, 2012). This scale separates workplace violence into four types: Type I through Type IV. Type I violence involves criminal intent in which the perpetrator does not have a legitimate relationship to the workplace and often involves the commission of a crime in conjunction with the violence. Type II violence involves the customer, client, or patient; the perpetrator becomes violent while receiving a service through the workplace. Type III violence describes behaviors that occur between workers in which the perpetrator is a current or past employee of the workplace who displays verbal, psychological, or less frequently, physical abuse. Type IV violence involves personal relationships; the perpetrator does not have a relationship with the workplace but has a personal relationship with the victim on whom they commit the violence act in the workplace.

The most widespread types of violence experienced by nurses are Type II and Type III violence from the IPRC scale (Hegney, Tuckett, Parker, & Eley, 2010; Longo, 2012; Pai & Lee, 2011; Roche, Diers, Duffield, & Catling-Paull, 2010). This study focused on Type III violence between nurses. This type of violence does not have one distinct moniker, but is identified in the literature under several names: lateral violence, bullying, horizontal violence, workplace incivility, disruptive behavior, intergroup conflict, mobbing, psychological terror, relational aggression and nurse-nurse hostility (Longo, 2012; Vessey, Demarco, & DiFazio, 2010). These labels include behaviors of verbal abuse, aggression, harassment, humiliation, and intimidation (Griffin, 2004; Hutchinson, Wilkes, Vickers, & Jackson, 2008; McKenna, Smith, Poole, & Coverdale, 2003; Stanley, Martin, Michel, Welton, & Nemeth, 2007). Type III WPV has been a problem in nursing for decades (Vessey et al., 2010). Recent research has described the negative consequences of bullying to the nurse victim, the profession and the organizations where it occurs (Longo, 2012).

Workplace Violence Type III: Bullying

Workplace violence that is committed by another employee may take the form of psychological, verbal or physical abuse (OSHA, 2011). This definition of WPV includes behaviors that are both overt and covert. Overt or blatant behaviors associated with Type III WPV include yelling, name-calling, pushing or physically blocking someone's path. The more difficult behaviors to recognize as WPV are the subtle or covert displays of abuse such as withholding information, gossip, excessive monitoring of work or being assigned an unreasonable workload (Longo, 2012).

Leymann first described the phenomenon of Type III WPV in the 1980s. The behaviors associated with Type III WPV were described and identified as “mobbing” or “psychological terrorism” (Leymann, 1990). Mobbing was defined as hostile and unethical communications that occur repeatedly over time while systematically directed at an individual. The victims reported psychological, somatic and social misery from mobbing (Leymann, 1990). Mobbing behaviors were found in Denmark, Western Germany, England, Austria, the United States, and Australia (Leymann, 1990). Leymann found workplace bullying or mobbing had significant consequences to the victim, the employer, and society. The victims experienced social isolation which resulted in depression, hyperactivity, psychosomatic illness and even suicide (Leymann, 1990). The employer experienced consequences from bullying as realized through a decrease in the victim’s productivity and an increase in absenteeism which ultimately resulted in loss of revenue for the employer (Leymann, 1990).

Since Leymann’s early work, it has been understood that workplace bullying is an international problem that occurs across professions. The European Union collects workplace data from member countries. These data provide important information on WPV across a variety of countries, cultures and professions. The European Foundation for the Improvement of Living and Working Conditions (Eurofound) report in 2010, found that approximately one in ten European workers experienced WPV in the past year and approximately 5% reported bullying or harassment. Finland and the Netherlands had the highest levels of bullying (17% and 12%), while Italy and Bulgaria had the lowest (2%) (Eurofound, 2010). Bullying was most prevalent in workplaces with high levels of

public contact (Eurofound, 2010). Employees in the health and social work sectors reported the highest levels of bullying (Eurofound, 2010). Workers who were exposed to bullying behaviors had higher levels of work-related health problems manifested as stress, sleeping problems, anxiety and irritability (Eurofound, 2010).

In the United States the Workplace Bullying Institute (WBI) conducted research on adult workers in 2010 and found that 35% (N=2092) of Americans experienced workplace bullying (Namie, 2010). An additional 15% of the respondents witnessed workplace bullying (Namie, 2010). The majority of workplace bullying occurred between people of the same gender, with women bullying other women 80% of the time (Namie, 2010). People with a college education reported higher levels of workplace bullying than those with a high school education (Namie, 2010). Hispanics and African-Americans experienced the highest level of workplace bullying (Namie, 2010). The WBI's report from the 2007 survey found that 45% of bullying victims experienced stress from bullying that had affected their health (Namie, 2007). An alarming 40% of victims voluntarily left their job to stop their exposure to the bullying, with women more likely to leave the organization than men (45% vs. 32.3%) (Namie, 2007).

Type III WPV in Healthcare

The World Health Organization (WHO) recognized that a significant portion of workplace violence occurred in the healthcare environment and that nurses were particularly vulnerable to WPV (World Health Organization [WHO], International Labour Organization [ILO], International Council of Nurses [ICN], & Public Services International [PSI], 2002). To address the problem of WPV, the WHO, the ILO and the

ICN developed guidelines to address WPV in the healthcare sector. This collaborative effort significantly changed the perception that WPV and bullying are isolated behaviors of an individual; but instead these behaviors are a significant global problem. The guidelines reported that 25% of all workplace violence occurs in the healthcare environment with nurses being extremely vulnerable to victimization through WPV (WHO, et al., 2002). Victims of WPV and bullying display a lack of motivation and a decrease in confidence (WHO, et al., 2002). When WPV persists over time physical illness, psychological trauma and substance abuse were often observed in victims (WHO et al., 2002).

In the decade since the WHO released the guidelines for addressing WPV in the healthcare sector, researchers along with healthcare organizations have explored the issues associated with WPV in healthcare. Researchers have confirmed that workplace bullying is a significant problem for nurses. In the Southeastern United States, 84.5% (N=517) of nurses experienced bullying verbal abuse (Judkins-Cohn, 2010) while 31% (N=511) of new nurses in Massachusetts had experienced bullying (Simons, 2008).

The ICN recognized that WPV impacts nurses around the world and developed guidelines to address the problem in 2007 (ICN, 2007). These guidelines address physical violence from patients and families (Type II) as well as verbal abuse and psychological abuse from co-workers (Type III)(ICN, 2007). The ICN report found 30.9% of nurses were bullied in Bulgaria, 20.6% in South Africa and 10.5% of nurses were bullied in Australia (ICN, 2007). Nurses' responses to WPV ranged from a passive acceptance of the situation (30% ignored the situation) to an active response to bullying including a

physical defense which was rarely used (ICN, 2007). Nurses who experienced any type of WPV had increased levels of stress, migraine headaches, loss of self-esteem, loss of job satisfaction, and exhibited avoidance behaviors which affected a nurses ability to complete their duties (ICN, 2007). Nurses who experienced bullying were also more likely to leave the organization and the profession (ICN, 2007). The recommendations from the ICN are broad and address issues of security, organizational factors, clinical issues, the physical work environment and staff competencies (ICN, 2007).

In the United States, several organizations have issued statements concerning WPV in the healthcare setting. The Department of Health and Human Services (DHHS), the Centers for Disease Control and Prevention (CDC), and the National Institute for Occupational Safety and Health (NIOSH) released a report titled: *Exposure to Stress: Occupational Hazards in Hospitals* in 2008. This report identified WPV as a significant source of stress among nurses who are employed by hospitals (DHHS, 2008). Occupational stress was found to negatively affect the employee's health leading to depression, irritability, decreased job satisfaction, sleep problems, absenteeism, changes in blood pressure, headache, upset stomach, and severe stress which could lead to post-traumatic stress disorder (PTSD) (DHHS, 2008).

The Joint Commission is an independent, non-profit organization that accredits healthcare organization in the United States to ensure quality health care is provided to the public. In 2008, The Joint Commission released a "Sentinel Event Alert" that described the effects of disruptive behaviors in healthcare systems. Disruptive or intimidating behaviors are aligned with Type III WPV as previously described. The Joint

Commission concluded that disruptive behaviors, or Type III WPV, endanger the safety and quality of patients' healthcare (Joint Commission, 2008). The Sentinel Event Alert also mandated new leadership guidelines (effective 2009); these strategies necessitate that hospital leaders develop and maintain a comprehensive plan to address WPV in the workplace (Joint Commission, 2008).

The American Nurses Association (ANA) is a professional organization that represents the interests of registered nurses in the United States. The ANA's 2006 House of Delegates released a resolution regarding nurses who face WPV. This resolution reiterated the ICN's statements against WPV and confirmed that all nurses have the right to work in a healthy work environment free of abusive behaviors including bullying (American Nurses Association [ANA], 2006). In addition, the ANA developed a Model State Bill, Code of Ethics and a nurses' Bill of Rights to assist in decreasing WPV. The Model State Bill is titled "The Violence Prevention in Health Care Facilities Act" and is designed as a template for states to develop a bill to put forth through local legislative process (ANA, 2012). The Bill of Rights states that nurses have the right to a work environment that is safe for the nurses and their patients (ANA, 2001b). The ANA Code of Ethics does not address bullying behaviors directly, however the principles of respect for human dignity (1.1), respect for persons (1.5), and collaboration (2.3) are core principles that promote healthy work relationships (ANA, 2001a). The ANA continues to recognize the importance of addressing bullying in nursing as it has recently published *Bullying in the Workplace: Reversing a Culture* (Longo, 2012). The author describe the

phenomenon of bullying and provide strategies for nurses to take action against bullying (Longo, 2012).

Internationally, many nurse researchers have examined the phenomenon of nurse bullying. The majority of the bullying research has been conducted in the United States, Australia, and Canada. Though the cultures and the healthcare delivery systems are very different between these countries, it appears that nurses around the world have similar experiences with workplace bullying.

Research conducted in North America has reported bullying among nurses with diverse findings which ranged from 27.3% ($N=249$) (Johnson & Rea, 2009) to 80% ($N=62$) (Stagg, Sheridan, Jones, & Speroni, 2011). Examining the research geographically reveals that in 2008 31% ($N=511$) of nurses in the Northeastern United States experienced bullying (Simons, 2008); but more recent research reported 70% ($N=303$) of nurses experienced bullying (Vessey et al., 2009) in the same region. In the Midwestern United States researchers found 75% ($N=197$) of nurses were bullied in the past 30 days (Berry, Gillespie, Gates, & Schafer, 2012). In Washington state 27.3% ($N=249$) of nurses reported bullying (Johnson & Rea, 2009). In Canada 26.4% ($N=165$) of new nurses reported bullying (Laschinger & Grau, 2012). One of the difficulties in comparing research findings on bullying is the variety of terms researchers use to classify the same behaviors. Research that examined the behaviors of bullying using other terms has also found an increase in prevalence. Horizontal violence and lateral violence are included in bullying behaviors. Two seminal studies reported the incidence of lateral violence ranged from 34% ($N=551$) (McKenna et al., 2003) to 46% ($N=26$) (Griffin,

2004). However, recent studies reported higher levels of lateral violence. Hinchberger found that 100% ($N=126$) of nursing students had experienced or witnessed WPV in clinical settings, and 50% of the perpetrators were staff members (Hinchberger, 2009). Dumont found that 82% ($N=950$) of nurses experienced or witnessed horizontal violence weekly or daily (Dumont, Meisinger, Whitacre, & Corbin, 2012). Thus, recent research validates that bullying continues to be a problem within nursing.

Consequence of Bullying: Victim

Exposure to bullying can be detrimental to victims physical and mental health (Einarsen et al., 2011; Hauge, Skogstad, & Einarsen, 2010; Namie, 2012). The physical symptoms most commonly associated with being bullied are related to the prolonged exposure to stress (Einarsen et al., 2011; Hauge et al., 2010). When examining the impact of bullying across occupations the most common physical effects were difficulty sleeping, headaches, hypertension, palpitations along with an increase in substance abuse (Einarsen et al., 2011; Namie, 2012). Research has found that the psychological effects of bullying can vary from an increase in the level of stress (Namie, 2012), difficulty concentrating (Namie, 2012), increased anxiety (Brousse et al., 2008; Hauge et al., 2010), or depression (Brousse et al., 2008; Hauge et al., 2010) with the most devastating effect being post-traumatic stress disorder (PTSD) (Einarsen et al., 2011; Namie, 2012). Bullying is very traumatic for the victim as well as for coworkers who witness the events (Einarsen et al., 2011; Workplace Bullying Institute [WBI], 2011).

It is expected that nurses would suffer similar negative effects from bullying as other occupations, but only a few nurse researchers have examined the effects of bullying

on nurses' health. The studies of nurses that examined the psychological effects of bullying found victims had difficulty concentrating (Vessey et al., 2009), increased anxiety (Gates, Gillespie, & Succop, 2011; Vessey et al., 2009; Yildirim & Yildirim, 2007), and higher incidence of depression (MacIntosh, 2005; Vessey et al., 2009; Yildirim, 2009); with some nurses displaying symptoms of PTSD (Gates et al., 2011; Pai & Lee, 2011). The most common physical symptoms attributed to the effects of bullying were identified as headaches (Vessey et al., 2009; Yildirim, 2009), gastrointestinal upset (Vessey et al., 2009), and changes in sleep patterns (MacIntosh, 2005; Vessey et al., 2009; Yildirim, 2009). From these studies, it can be concluded that nurses suffer similar health consequences from bullying as adults in other occupations.

Consequence of Bullying: Organization

The effects of bullying extend beyond the individuals involved; it also affects the organizations that employ nurses. These organizations bear the cost of bullying primarily from an increased rate of employee turnover and absenteeism (Brousse et al., 2008; Einarsen et al., 2011; Hauge et al., 2010).

Nurse researchers have also found that nurses who have been bullied show an increased intention to leave the organization (Longo, 2012). One of the few longitudinal studies (N=2154) conducted on bullied nurses found the victims had an increase in intent to leave the organization (Hogh, Hoel, & Carneiro, 2011). Houshmond et al. (2012) also found that the co-workers of victims had higher intent to leave the organization to escape the toxic work environment. Johnson and Rea (2009) found that nurses who were bullied were twice as likely to leave their job within two years (N=249). Several other

studies reported higher levels of intent to leave the organization in those who have experienced bullying behaviors compared to nurses who were not bullied (Simons, 2008; Smith, Andrusyszyn, & Laschinger, 2010).

Intent to leave the organization is associated with actual turnover (Cowden & Cummings, 2012). There are many factors that contribute to a nurse's decision to leave an organization including: commitment to the organization, job satisfaction, leadership, and the work environment (Cowden & Cummings, 2012). The work environment includes two areas that can be influenced by bullying: work group cohesion and empowerment (Larrabee et al., 2010). Work group cohesion is the level of support and collegiality of coworkers (Cowden & Cummings, 2012). Bullying in the workplace causes fractured relationships, and a decreased sense of community, and lack of empowerment (WBI, 2011). The impact of bullying on work relationships can affect a nurse's intent to leave the unit or the organization.

Nurses are vital to the healthcare system. The Bureau of Labor Statistics (BLS) has forecasted a 26% increase in registered nurse (RN) job positions from 2010-2020 (BLS, 2012). This projected increase in RN job positions makes it imperative that organizations retain experienced nurses in the profession.

Stress

The manner in which a person perceives and copes with external demands can cause tension or stress. Stress is the physical and psychological response to events in a person's life that overwhelm their ability to cope (Cohen, Kamarck, & Mermelstein, 1983). Detrimental stress is experienced when a person cannot maintain balance between

demands and resources. Exposure to chronic stress can lead to increased levels of anxiety and depression which may cause biological changes in the body (Cohen, Janicki-Deverts, & Miller, 2007). The biological changes that occur in the body are diverse and can affect the person's metabolism, immunity and inflammatory systems responses (Cohen et al., 2007). Prolonged exposure to stress causes psychological and physical changes. The interplay between stress exposure and outcomes is not fully understood. The protective role resilience may have in exposure to chronic stress is an area of future research (Beckie, 2012).

Resilience

Resilience is a dynamic process of adaptation in response to ever-changing demands, stressors and adversity with the goal of maintaining equilibrium (Herrman et al., 2011; Pipe et al., 2012). The manner in which a person responds to stress is unique to each individual. Several factors allow people to address stress in a constructive manner. One of the factors that allow people to handle stress or adversity less traumatically is resilience. There are five characteristics of resilience: (a) a purposeful life, (b) perseverance, (c) equanimity, (d) self-reliance, and (e) existential aloneness (Wagnild, 2009). A purposeful life, or meaningfulness, denotes that life has purpose and that there is a reason and value in living (Wagnild, 2009). Perseverance is the determination to continue the struggle to maintain one's life despite adversity or discouragement (Wagnild, 2009). Equanimity is the ability to maintain a balanced perspective on life, often with a sense of humor (Wagnild, 2009). People who are self-reliant are able to identify their personal strengths and capabilities and utilize them along with past

successes to make decisions (Wagnild, 2009). Self-reliant people believe in their ability to handle any circumstances. Existential aloneness is being comfortable and accepting of one's self without the need to conform (Wagnild, 2011). Resilience enables people to manage depression, anxiety, stress, and ultimately improves their quality of life (Wagnild, 2011).

Researchers have found that nurses with high levels of resilience had higher levels of job satisfaction (Larrabee et al., 2010) with corresponding lower intention to leave the organization (Larrabee et al., 2010; Pipe et al., 2012). Other studies indicated nurses with high resilience had lower levels of anxiety, depression, and stress (Mealer et al., 2012; Pipe et al., 2012). It is important for nurses to have high levels of resilience to cope with the inherent stress and demands of the healthcare environment.

Many of the consequences of bullying are related to the perceptions and reactions of the victim (Einarsen et. al., 2011). Throughout the literature, it is apparent that the response to bullying varies among individuals; some victims have minimal effects while others have devastating reactions. The victim's level of resilience could be a protective factor that decreases the impact of bullying behaviors. No research has been found that examined a nurses' resilience level in relation to workplace bullying. This study examined the nurse's resilience level to determine if it protects the nurse from the negative physical and mental effects of workplace bullying.

Purpose

The purpose of this study was to examine the prevalence of bullying in a sample of nurses employed in hospital settings. This study also explored the impact bullying had on nurses' physical health, mental health, and intent to leave the unit or organization. Additionally, this study examined if nurses' resilience mediates the negative effects of bullying on physical health, mental health and intent to leave their position or the organization.

Conceptual Model

The NIOSH model of job stress guided this study (see figure 1). According to the model, stressful job conditions are filtered through individual and situational factors with the output being risk of illness (NIOSH, 1999).

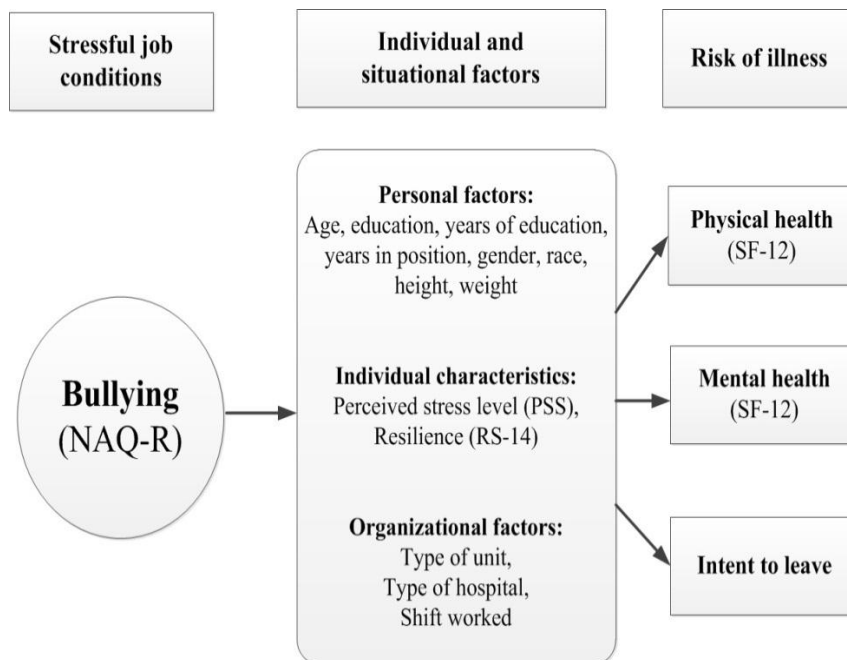


Figure 1. Conceptual Model based on NIOSH Model of Job Stress

Working conditions are a primary cause of job stress that can lead to an increased risk of illness (NIOSH, 1999). Some work conditions that can increase the level of job stress include the design of tasks, management style, interpersonal relationships, work roles, career concerns, and environmental conditions. This study focused on the work condition of interpersonal relationships, specifically bullying between peers as measured by the Negative Acts Questionnaire Revised (NAQR) (Einarsen, Hoel, & Notelaers, 2009).

A unique feature of the NIOSH model of job stress is the inclusion of individual and situational factors in the model. People perceive and respond to stress in different ways. This model considers the individual and situational factors that mediate stressful job conditions. The individual characteristics of age, years of experience, stress level and education influence the way work stress is perceived and managed (NIOSH, 1999). For the purposes of this study, the stressful job condition was bullying. The individual and situational factors were conceptualized into three categories: personal factors, individual characteristics, and organizational factors. Personal factors included age, race, gender, education, years of experience, and years in position, along with the participant's body mass index (BMI). The individual characteristics included participant's perceived stress level as measured by the Perceived Stress Scale (PSS)(Cohen et al., 1983) and resilience level which was measured by the Resilience Scale (RS-14)(Wagnild, 2009). The organizational factors included the type of facility, type of unit, and shift the participant normally works. The outcome measures used in this study under risk of illness were

physical and mental health as measured by SF12, and the nurse's intent to leave the unit or the organization.

Aims and Research Questions

The specific aims and associated research questions for this study were:

1. Examine the prevalence of nurses who experience bullying in acute care work settings.

Question (Q) 1: What proportion of nurses experience bullying in the workplace as measured by the NAQR?

2. Describe the relationship of the effects of bullying to physical and mental health and intent to leave in nurses who work in hospitals

Q2. Is there a relationship between bullying (NAQR) and physical health (PCS of SF12) in nurses?

Q3. Is there a relationship between bullying (NAQR) and mental health (MCS of SF12) in nurses?

Q4. Is there a relationship between bullying (NAQR) and intent to leave in nurses?

3. Examine the influence of individual factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level and resilience level) and organizational factors (type of unit, type of hospital, shift worked) on physical health (PCS), mental health (MCS) and intent to leave in nurses who have experienced workplace bullying.

Q5. Do personal factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level, resilience level), and organizational factors (type of unit, type of hospital, and shift worked) explain the variance in physical health (PCS of SF12) in nurses who have experienced workplace bullying?

Q6. Do personal factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level, resilience level) and organizational factors (type of unit, type of hospital and shift worked) explain the variance in mental health (MCS of SF12) in nurses who have experienced workplace bullying?

Q7. Do personal factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level, resilience level), and organizational factors (type of unit, type of hospital and shift worked) explain the variance in intent to leave in nurses who have experienced workplace bullying?

4. Explore the influence of resilience on physical health, mental health and intent to leave in nurses who have experienced workplace bullying.

Q8. When controlling for personal factors (age, gender, race, education, years in position, years of experience, BMI) and perceived stress level, does resilience act as a mediator on physical health (PCS) in nurses who have experienced workplace bullying?

Q9. When controlling for personal factors (age, gender, race, education, years in position, years of experience, BMI) and perceived stress level, does resilience act as a mediator on mental health (MCS) in nurses who have experienced workplace bullying?

Q10. When controlling for personal factors (age, gender, race, education, years in position, years of experience, BMI) and perceived stress level, does resilience act as a mediator on intent to leave in nurses who have experienced workplace bullying?

Operational Definitions

1. Stressful job conditions: A stressful job condition is any condition in the workplace that increases the level of stress an individual experiences at work. This study focused on workplace bullying as the source of stressful job conditions.
 - a. Workplace bullying: Bullying is the persistent exposure to negative and aggressive behaviors by a co-worker that are perceived as hostile, humiliating and intimidating (Einarsen et al., 2009). There may be a difference in power between the bully and victim; the difference may be formal or assigned by the organization. Another source of power gradient in relationships can be related to the flow of information. For example, an experienced nurse withholding information from a new nurse resulting in a difference in power related to information (Hutchinson, Vickers, Jackson, & Wilkes, 2006). Workplace bullying was measured with the Negative Acts Questionnaire-Revised (NAQR).

2. Individual and Situational factors were conceptualized into three separate categories:
- (a) personal factors, (b) individual characteristics, and (c) organizational factors.
- a. Personal factors are demographic variables that were collected on the survey. The items in this category included age, gender, race, education, experience, BMI.
- i. Age: The age the participant reported on the survey.
- ii. Education: The highest level of formal education in nursing as self-disclosed by participants on the survey along with the highest level of education earned.
- iii. Gender: Self-identification as male or female.
- iv. Race: Participants provided the race or ethnicity that they identify with.
- v. Experience: The amount of time the participant has been a nurse along with the amount of time the nurse has worked on their current unit.
- vi. BMI: The body mass index was calculated from self-reported heights and weights. $(\text{BMI} = \text{mass (lb.)} / \text{height (inches)}^2 \times 703.069)$.
- b. Individual characteristics included the participants perceived level of stress and resilience level.
- i. Stress: Stress is the physical and psychological response to events in a person's life which overwhelm their coping mechanisms (Cohen et al., 1983). Humans must remain within a normal range to maintain homeostasis physically, emotionally, and psychologically. When homeostasis is threatened, the person experiences stress. The perception of stress is specific to the individual's experience. People often experience stress about things

that are outside of their control such as illness, death, or divorce. However, the feeling of stress cannot be predicted solely through a life event measure. The best way to measure individual stress level is to ask the person how stressed they feel. The Perceived Stress Scale (PSS) was used to measure stress in this study.

- ii. Resilience: Resilience allows an individual to adapt and respond to stress or adversity. There are five characteristics of resilience: (a) a purposeful life, (b) perseverance, (c) equanimity, (d) self-reliance and (e) existential aloneness (Wagnild, 2011). Resilience was measured using the 14-item Resilience Scale (RS-14).
- c. Organizational factors include characteristics of the facility in which the nurse is employed.
 - i. Magnet status: The Magnet Recognition Program[®] was developed by the American Nurses Credentialing Center (ANCC) to recognize health care facilities that provide high quality nursing care (ANCC, 2013). Many factors are evaluated for Magnet status, but overall a Magnet facility empowers nurses in decision making with the organization and provides a healthy work environment (ANCC, 2013). Facilities that have earned Magnet status will be compared to those without Magnet status to determine if there is a difference in nurse bullying between facilities.
 - ii. Type of unit: Nurses are hired and assigned to work on specific units. Various units care for different patient populations. Traditionally nurses who worked

in areas such as the emergency departments and critical care areas reported higher stress levels related to the unpredictable workload and instability of their patients.

- iii. Shift worked: Many nurses work 12-hour shifts. Although the shifts have similar patient responsibilities, the day shift nurse usually experiences more contact with doctors, ancillary medical staff, family and visitors. The night shift nurse may have higher demands from fewer resources available and the challenge of being awake and alert overnight.

3. Risk of illness: In this study, illness was conceptualized to include general health measures and intent to leave. General health was measured using the SF12, which included components of physical (PCS) or mental health (MCS). An additional two questions captured intent to leave.

- a. General health: General health is the overall impression of health status by an individual (Ware et al., 2010). This is often defined as being free of illness, injury, or pain.
 - i. Physical health: Physical health (PCS) is largely determined from the physical function (PF), role-physical (RP), bodily pain (BP) and general health (GH) domains (Ware et al., 2010).
 - ii. Mental health: Mental health is a sense of well-being, with psychological balance and the ability to function socially. The domains that contribute to the MCS are vitality (VT), social functioning (SF), role-emotional (RE) and mental health (MH) (Ware et al., 2010).

- b. Intent to leave: Intent to leave is considered in two domains. Intent to leave the current unit and intent to leave the organization. Intent to leave is multifactorial; including stress, job satisfaction and inability to provide quality care (Letvak & Buck, 2008).
 - i. Intent to leave unit: Using a five point Likert scale participants indicated how likely they were to leave their current unit in the next 12 months.
 - ii. Intent to leave organization: Using a five point Likert scale participants indicate how likely they were to leave their current employer in the next 12 months.

Assumptions

Several assumptions were inherent to this study. It was assumed that participants were honest and forthcoming when they answered the survey. It was assumed that the tools used accurately measured the phenomenon of interest in this population. It was also assumed that some nurses are bullied and that they experience negative consequences related to bullying.

Summary

The purpose of this study was to examine the prevalence of workplace bullying among nurses and the effects bullying has on the nurses' health and intent to leave their position. This study examined the influence of individual factors (age, gender, race, education, years of experience, years in position, BMI), individual characteristics (perceived stress level and resilience level) and organizational factors (type of unit, type of hospital, shift worked) on physical health (PCS), mental health (MCS) and intent to

leave in nurses who experienced workplace bullying. This study also evaluated if nurses' resilience mediates the negative effects of bullying on physical health, mental health and intent to leave their unit or the organization. The NIOSH model of job stress was used to guide this research.

CHAPTER II

REVIEW OF THE LITERATURE

Workplace bullying (WPB) is a global problem that has been recognized in many countries and within a variety of occupations (Einarsen et al., 2011). The occupations with the highest incidence of bullying are healthcare, social service, education and public service (Einarsen et al., 2011; Eurofound, 2010). Research on WPB has also shown that women are more frequently the victims of bullying (Einarsen et al., 2011); however women are often the perpetrators of bullying (Namie, 2010). Several studies have found that men will bully both men and women, and women predominately only bully other women (Einarsen et al., 2011; Leymann, 1990; Namie, 2010).

Nursing has formally recognized bullying among their members since the mid 1980's (Meissner, 1986). Beginning in the 1990s, nurse researchers began examining bullying in the nursing profession. There is a large body of knowledge concerning bullying among nurses, but an effective method to decrease the negative effects of bullying has not been identified.

With the understanding that WPB occurs in many work environments, a concentrated literature review was conducted, focused on WPB among nurses. This review concentrated on research published in the past decade, or since August 2002. The electronic databases Academic Search Premier, Cumulative Index to Nursing and Allied Health Literature (CINAHL) plus, MEDLINE, psych INFO, and Business Source

Premier were searched. The search was limited to research that was available in the English language, and published in peer-reviewed journals. Search terms used included “nurse and disruptive behavior”, “nurse and horizontal violence”, “nurse and lateral violence”, “nurse and workplace violence”, “nurse and bullying”, “nurse and incivility”, “nurse and interpersonal conflict”, and “nurse and verbal abuse”. Additional search terms used were “nurse”, “nurses”, “nursing”, and all of the following in a Boolean search: “bullying”, “harassment”, “social aggression”, and “verbal abuse”, “interpersonal conflict”, and “resilience”. Additional articles were located from the articles that were reviewed or from the “smart text” search function on EBSCO host database along with Google Scholar. More than one hundred articles were reviewed. This review of the state of the science has been limited to research articles that have been published in the past ten years along with works that are considered formative to the topic. Studies that were excluded include those that: (a) focused solely on behavior between physicians and nurses; (b) exclusively addressed behaviors between nursing students and faculty; (c) the majority of the sample were not nurses; (d) the sample was limited to advanced practice nurses; (e) solely described violent behaviors of patients or families directed at nurses. The focus of this review is Type III violence that is directed at nurses by a person who is currently employed by the organization. This type of violence includes many different behaviors, but they are all disruptive behaviors. One of the difficulties faced in comparing research that examined disruptive behaviors that occurred in the workplace is the lack of a single conceptualization of the phenomenon (Longo, 2012; Stanley et al., 2007). It is important to understand the phenomenon being studied regardless of the

name it is given. Because the term, “bullying” is used along with many other terms to describe similar behaviors, a review of terms and associated behaviors will be presented first.

A total of 78 articles were examined for this review. Most of the published research used quantitative research methods, with 51 using survey methodology to explore the topic of bullying.

Bullying in Nursing

The nursing research that has been conducted on disruptive behaviors between co-workers in healthcare settings has used many different names to describe the same or similar behaviors. The most common terms used to describe disruptive behaviors among nurses are “bullying”, with “horizontal violence”, “incivility”, “verbal abuse”, and “violence” also used frequently. Unfortunately, a common definition of any of these terms does not exist. Authors frequently use the terms interchangeably or do not provide an operational definition for the concept being explored (Vessey et al., 2010).

The Joint Commission used the phrase “disruptive behaviors” to capture all the negative behaviors that can occur between co-workers in the healthcare environment (Joint Commission, 2008). However, there are important differences between the terms used to describe disruptive behaviors. Incivility is disrespectful or rude behavior that is not designed to harm the victim (Lewis & Malecha, 2011). Incivility disrupts workflow and obstructs a healthy work environment (Laschinger, Leiter, Day, & Gilin, 2009; Laschinger, Finegan, & Wilk, 2009; Leiter, Laschinger, Day, & Oore, 2011). Incivility may be considered a low-level of bullying. This rude and disrespectful behavior can

occur at any level within the organization for example the source of incivility may originate from a supervisor, peer, or subordinate (Leiter et al., 2011).

Horizontal violence, or lateral violence represents hostile or aggressive behavior directed between coworkers who are at the same level within the organizational structure (Dumont et al., 2012). Horizontal violence may be committed openly, or may involve more subtle displays of hostility. Horizontal violence is frequently manifested as verbal abuse, non-verbal gestures which display negativity, backstabbing, or a failure to respect confidences (Griffin, 2004; Walrafen, Brewer, & Mulvenon, 2012). The distinguishing feature of horizontal violence is that the phenomenon occurs among workers who are at the same level in the organization. Although the victim and perpetrator are at the same level in the organization, there may be a power difference associated with nursing expertise, experience in the organization or on the unit, or additional education or certification (Griffin, 2004; McKenna et al., 2003; Walrafen et al., 2012).

Among nursing research, bullying is the term that is used most often to describe disruptive behaviors in the workplace. Several researchers did not include the operational definition of bullying that was used in their studies (Hutchinson, Vickers, Wilkes, & Jackson, 2010; Randle, 2003). Although researchers operationalize the concept of bullying differently, the common thread is the nurse (victim) has been exposed to disruptive behaviors in the workplace, which has caused humiliation and distress (Berry et al., 2012; Ceravolo, Schwartz, Foltz-Ramos, & Castner, 2012; Longo, 2012). The behaviors that are seen in bullying include: verbal abuse (Ceravolo et al., 2012), aggression (Khalil, 2009), harassment (Magnavita & Heponiemi, 2011), humiliation

(Vessey et al., 2009), scapegoating (Longo, 2012), intimidation (Hutchinson, Vickers, et al., 2010), non-verbal innuendo (Dumont et al., 2012) and repeated gossip (Hogh et al., 2011). There are two significant ways in which the researchers varied in their conceptualization of bullying: (a) if the exposure to disruptive behaviors must be repeated, and (b) the duration of exposure to disruptive behaviors that is considered bullying.

A one-time exposure to disruptive behavior does not constitute bullying. It is understood that the exposure to disruptive behavior must be repeated over time. The majority of research included repetition of exposure in their definition of bullying (Berry et al., 2012; Johnson & Rea, 2009; Laschinger & Grau, 2012; Simons, 2008). However, not all researchers included the requirement of repeated exposure to disruptive behavior in the conceptualization of bullying (Hutchinson, Vickers, et al., 2010; Smith et al., 2010; Vessey et al., 2009). The criteria of exposure time to disruptive behaviors varied significantly among studies. Most researchers did not indicate how frequently victims must be exposed to disruptive behaviors in their conceptualization of workplace bullying (WPB) (Corbin, Dumont, & Brunnelle, 2011; Dumont et al., 2012; Stanley et al., 2007). Of the researchers who included the length of time the victims were exposed to disruptive behaviors, Roche et al. (2010) used the shortest period, examining the past five shifts worked for the exposed time. The most common time frame used in studies was six months (Berry et al., 2012; Fornés, Cardoso, Castelló, & Gili, 2011; Houshmand et al., 2012) and 12 months (Hogh et al., 2011; Stagg et al., 2011; Yildirim & Yildirim, 2007).

Hinchberger (2009) used the longest period, asking participants if they had experienced bullying over the past two to three years.

The definition, which captures the critical elements of bullying, was used in this study: Workplace bullying is repeated exposure to disruptive behaviors that has occurred over at least six months. The WPB is directed against a worker and causes humiliation, offence, or distress; the target of bullying has difficulty defending themselves against the attacks (Berry et al., 2012; Einarsen et al., 2009; Simons, 2008).

Prevalence of Bullying in Nursing

The prevalence of WPB among nurses varies greatly between studies. In the United States, the highest level of bullying was reported by Stagg et al. (2011) where 80% (N=62) of the hospital nurses reported WPB in a pre-intervention survey. Research conducted in Europe reflected a wide range in the percentage of nurses bullied; the highest level of WPB in nursing was found in Turkey where 82% (N=286) of nurses who worked in medical centers reported being bullied (Yıldırım, 2009). The lowest level of WPB was found in Denmark where 9.2% (N=2154) of nurses reported being bullied at work (Hogh et al., 2011). Nurse researchers from Australia report that WPB was experienced by 38.1% (N=273) of midwives and nurses (Rodwell & Demir, 2012). Recent research from Canada has also shown a smaller number with 26.4% (N=165) of new nurses reporting that they were bullied (Laschinger & Grau, 2012). Research conducted in the United States found diverse prevalence rates of bullying ranging from 80% (N=62) in a quasi-experimental study pre-test (Stagg et al., 2011) to 27.3% (N=249) of Washington State emergency nurses reporting that they were bullied (Johnson & Rea,

2009). Even studies that used the same tool to measure bullying reported a wide range of results in similar geographic locations: Berry et al. (2012) examined WPB among new nurses in Indiana, Kentucky, and Ohio using the NAQR, a staggering 75% ($N=197$) of nurses were bullied in the workplace. Chipps and McRury (2012) conducted intervention research with nurses who worked in Ohio and found that 37% ($N=16$) of nurses were bullied as measured by the NAQR. Two other researchers used the NAQR to measure bullying and found similar results from the west coast and east coast of the United States; Simons (2008) found 31% ($N=511$) of new nurses were bullied in Massachusetts, and Johnson and Rea (2009) found 27.3% ($N=249$) of emergency nurses were bullied in Washington State. It is difficult to draw conclusions about the prevalence of bullying with such diverse findings. It can be concluded from the research that too many nurses are exposed to bullying in the workplace. More research needs to be conducted to clarify the prevalence of the phenomenon.

The organizational environments in which nurses are employed are numerous and varied. Because of the different operational definitions and methods to measure WPB, it is not clear if bullying is experienced at the same level in acute care hospitals, teaching facilities, Magnet facilities, outpatient facilities, psychiatric facilities, long-term care facilities, home health, and hospice or varies among different units in the same facility. Other areas that merit more research are the influence of the individual characteristics of the nurse. For example does gender, age, race, BMI, level of education, or level of experience alter the experience of bullying.

A significant challenge in researching WPB is finding nurses who have experienced bullying and are willing to share their experiences. People bullied at work are victims and may not be forthcoming in reporting their experiences (Einarsen et al., 2009). Many researchers have used convenience sampling; however, this may result in a disproportionate number of nurses who have been bullied participating in the study as they have a vested interest in the topic. Researchers have surveyed nurse members of organizations with various response rates. Dewitty et al. (2009) surveyed members of The Center for American Nurses website which yielded 858 participants, however the response rate was not reported; Fujishiro, Gee and de Castro (2011) distributed surveys to the first 1000 attendees of the 2007 Philippine Nurses Association national convention and had 69% returned. Dumont et al. (2012) used an electronic survey that was published in the journal *Nursing* and 950 participants answered the survey; similarly Vessey et al. (2009) used electronic surveys with links provided at the end of an article on bullying in *Nursing Spectrum* magazine. This method yielded 303 participants with an unknown response rate. The most common method used to collect data is to survey a specific hospital system or unit. The largest survey of this type was conducted through the Veteran's Health Administration as part of a development initiative project to increase civility in the workplace. The intervention was completed in two cycles with several cohorts in each cycle (N=1294), the response rate was not reported (Osatuke, Moore, Ward, Dyrenforth, & Belton, 2009). Researchers report higher response rates outside of the United States; for example in Turkey Dilek and Aytolan (2008) had a 74% (N=476) response rate to their survey of nurses who worked in Istanbul. In Denmark,

Hogh et al. (2011) reported 89.5% ($N=2154$) of surveys returned in the first wave of a prospective study of WPB in healthcare workers and job turnover. There may be cultural norms and expectations that influence participation in studies that is difficult for a non-member of that culture to understand.

Settings

The focus of most research has been examining WPB in nurses who work in an acute care setting. Early research on WPB indicated that specialty care units such as critical care or emergency departments had the highest incidence of WPB (Stanley et al., 2007), but that is not consistent with more recent research that has found that medical-surgical units have the highest incidence bullying (McKenna et al., 2003; Roche et al., 2010). Vessey et al. (2009) found the highest level of bullying occurred in medical-surgical units (23% $n=212$), critical care units (18%, $n=38$), followed by emergency departments (12%, $n=25$). Efe and Ayez (2010) found the work area that had the most bullying reported (27.1%, $n= 190$) was in the intensive care unit. From these studies, it is unclear which units actually have the highest risk for bullying in the workplace.

Many organizations strive to maintain a healthy workplace environment. Hospitals who have acquired Magnet designation from the American Nurse Credentialing Center, or the BeaconTM Award, from the American Association of Critical Care Nurses have met criteria that indicate they provide nurses with a healthy work environment. Researchers have examined the influence healthy environments have on WPB; Lewis and Melecha (2011) found workplace incivility scores were lower in nurses who worked in Magnet or Beacon sites as compared to nurses workplace incivility scores

who worked in standard work environments ($p < 0.001$). Magnet designation indicates a healthy work environment, but does not specifically evaluate for WPB.

Experience of Nurse

New graduate nurses are particularly vulnerable to WPB. One of the first research studies published that described WPB among new nurses reported that more than 50% ($N=551$) of new nurses in New Zealand had experienced WPB (McKenna et al., 2003). In the past decade, additional studies have confirmed new nurses are vulnerable to WPB. Most researchers have defined a new nurse as one with less than one year of experience or less than three years of nursing experience. In nurses who have less than one year of nursing experience: 26.4% ($N=165$) have been bullied (Laschinger & Grau, 2012); 46% have experienced lateral violence ($N=26$) (Griffin, 2004); and 62% ($N=612$) have been verbally abused (Pellico, Brewer, & Kovner, 2009). In a qualitative study, new nurses described frequent experience with horizontal violence and their perception of professional isolation (Dyess & Sherman, 2009). Among nurses who had less than three years of experience as a nurse, 31% ($N=511$) were bullied (Simons, 2008), and 44.7% ($N=197$) identified themselves as the target of a bully (Berry et al., 2012).

Time in Current Position

Vessey et al. (2009) found that 58% ($N=122$) of nurses with less than five years of experience on a particular unit were bullied. This may indicate that new nurses to the unit are more vulnerable regardless of their experience as a nurse. In this study the longer a nurse was in a position the less bullying they reported; for nurses with six to 15

years of experience in a unit, 26% ($N=55$) experienced bullying, for those with more than 16 years of experience the incidence of bullying fell to 16% ($N=35$) (Vessey et al., 2009).

Age

The average age of a registered nurse in the United States has consistently increased over the past ten years. In 2008 the median age of registered nurses was 46 years (DHHS, 2010). Nurses with a variety of ages in the workplace results in many generations working together to care for patients. Leiter, Price, and Laschinger (2010) examined the generational differences related to incivility in nurses. This study defined Baby Boomer nurses as those born between 1943-1958 or 52-67 years old when the study was published; Generation X nurses were defined as those born between 1963-1981 or 29-47 years old. The Generation X nurses reported greater distress than Baby Boomers related to incivility in the workplace (Leiter, Price, & Laschinger, 2010).

Research has indicated that younger nurses and those with less clinical experience are more vulnerable to WPB. However, a nurse's age does not always correlate with the level of experience in the profession as more people enter the profession later in life. The people who have entered nursing in their 30's or 40's may also enter the profession with more experience with handling conflict.

Level of Education

In the United States a person must successfully complete one of three pre-licensure education paths: an associate degree, diploma, or bachelor degree and successful completion of the National Council Licensure Examination (NCLEX) to become a registered nurse (BLS, 2012). In North Carolina 0.6% ($n=7529$) of licensed

registered nurses have a diploma in nursing, 31.5% ($n=37468$) have an associate degree and 27% ($n=31913$) have a bachelor's of science of nursing degree (NCBON, 2012).

Research was not found that indicated that one education level was more vulnerable to WPB than another was, but it would be useful to examine the demographics of the sample to see if they are representative of the target population.

Stress

Stress is the physical and psychological response to an event in a person's life which overwhelms their coping mechanisms (Cohen et al., 1983). Nurses face competing demands which require critical thinking to effectively prioritize their workload throughout the workday (Mealer et al., 2012). When the competing needs overwhelm the nurse's ability to cope with the demands, stress is experienced (Taylor & Barling, 2004). Taylor and Barling (2004) conducted a qualitative study of mental health nurses in which they found a significant source of stress in the workplace came from horizontal violence between staff members. Gates et al. (2009) examined the impact WPV had on the stress levels of nurses; 94% ($n=209$) of participants who experienced WPV had at least one stress symptom after the event.

Resilience

The manner in which a person responds to stress is unique to that individual. Several factors allow people to address stress in a constructive manner. One of the factors that allow people to handle stress or adversity less traumatically is resilience. Resilience is a dynamic process of adaptation in response to ever-changing demands, stressors, and adversity with the goal of maintaining equilibrium (Herrman et al., 2011;

Pipe et al., 2012). There are five characteristics of resilience: (a) a purposeful life, (b) perseverance, (c) equanimity, (d) self-reliance, and (e) existential aloneness (Wagnild, 2009). Duddle and Boughton (2007) conducted a qualitative study to explore professional relationships between nurses where they identified three themes, 'difficult interactions', negotiating the 'territory', and 'resilience'. Resilience was recognized as a way to cope with difficult interactions and not internalize the emotional response of the events (Duddle & Boughton, 2007). No research was found that examined WPB and victims level of resilience to combat the effects of bullying. Nursing workforce researchers have found that high levels of resilience correlates with increased job satisfaction (Larrabee et al., 2010; Simoni, Larrabee, Birkhimer, Mott, & Gladden, 2004), decreased levels of burnout (Mealer et al., 2012) and decreased intent to leave their position (Larrabee et al., 2010).

Mealer et al. (2012) used survey methodology to examine the influence resilience has on nurses who worked in intensive care units in the United States. Among nurses who returned a completed survey ($N=725$), 22% ($n=157$) had high levels of resilience; and had fewer symptoms of anxiety (8% vs. 21%, $p = 0.003$) and depression (2% vs. 14%, $p < 0.001$) (Mealer et al., 2012).

Laschinger and Grau (2012) conducted a cross-sectional study to examine the influence of personal factors and organization resources on WPB in new nurses. The model they created found psychological capital was positively related to areas of work life fit ($\beta = .44$, $p < 0.05$), and negatively related to emotional exhaustion ($\beta = -.23$, $p <$

0.05). Psychological capital was defined to include self-efficacy, hope, optimism and resilience in this study (Laschinger & Grau, 2012).

Pellico et al. (2009) completed a secondary analysis of comments from new nurses who were employed within the United States. The identified themes included; “colliding expectations”, “the need for speed”, “you want too much”, “how dare you”, and “change is on the horizon” (Pellico et al., 2009). The theme “how dare you” detailed new nurses experiences with WPB, but at the same time the theme “change is on the horizon” described the need for change and how new nurses were going to be change agents combating WPB (Pellico et al., 2009). The authors noted that some participants had a resilience that allowed them not to see the problems as overwhelming (Pellico et al., 2009).

Effects of Bullying

Exposure to bullying can be detrimental to the victim’s physical and mental health (Einarsen et al., 2011; Hauge et al., 2010; Namie, 2012). The physical symptoms most commonly associated with being bullied are related to the prolonged exposure to stress (Einarsen et al., 2011; Hauge et al., 2010). The most common physical ailments related to WPB are difficulty sleeping, headaches, hypertension, palpitations and an increase in substance abuse (Einarsen et al., 2011; Namie, 2012). The physical symptoms attributed to the effects of bullying were identified as headaches (Vessey et al., 2009; Yildirim, 2009), gastrointestinal upset (Vessey et al., 2009), and changes in sleep patterns (MacIntosh, 2005; Vessey et al., 2009; Yildirim, 2009). Fujishiro et al. (2011) found that

nurses in the Philippines ($N=687$) who experience verbal abuse at work also had poor general health (prevalence ratio [PR] = 1.94; 95% confidence interval [CI] = 1.09, 3.45).

Hutchinson et al. (2010) tested a model, which integrated individual, work group and organizational factors in nursing in Australia. They found that WPB negatively influenced the health of nurses, primarily through work and career interruption (Hutchinson, Wilkes, Jackson, & Vickers, 2010).

Portuguese nurses ($N=107$) who experienced bullying in the past six months had lower mental health scores ($M=1.71$, $SD=4.58$) compared to those who were not bullied ($M=14.9$, $SD=4.14$, $t(105)=2.65$, $p < 0.005$) (Sá & Fleming, 2008). WPB was positively correlated with somatic symptoms ($r = 0.20$, $p=0.05$), and severe depression ($r = 0.26$, $p=0.01$) and negatively correlated with mental health ($r = -0.28$, $p= 0.01$) (Sá & Fleming, 2008)

Researchers have found that the psychological effects of bullying can vary from a perception of increased level of stress (Namie, 2012), difficulty concentrating (Namie, 2012), increased anxiety (Brousse et al., 2008; Hauge et al., 2010), or depression (Brousse et al., 2008; Hauge et al., 2010). The most severe result of bullying is post-traumatic stress disorder (PTSD) (Einarsen et al., 2011; Namie, 2012) or even suicide (Leymann, 1990).

Studies of nurses that examined the psychological effects of WPB found victims had difficulty concentrating (Vessey et al., 2009) increased anxiety (Gates et al., 2011; Vessey et al., 2009; Yildirim & Yildirim, 2007) and increased levels of depression (MacIntosh, 2005; Vessey et al., 2009; Yildirim, 2009) with some nurses displaying

symptoms of PTSD (Gates et al., 2011; Pai & Lee, 2011). Pai and Lee (2011) examined risk factors of violence in clinical nurses in Taiwan and found that bullying was associated with anxiety ($N=521$) (odds ratio = 2.7, 95% CI = 1.09-6.93), and 25% of nurses who experienced verbal abuse or bullying had a PTSD high enough to meet the criteria for a medical diagnosis.

Vessey et al. (2009) found that the majority of nurses who were bullied experienced moderate to high levels of stress (90%, $n=191$). Of those who were bullied, 95% ($n=137$) experienced anxiety, 72% ($n=137$) had stress headaches or gastrointestinal symptoms; 56% ($n=107$) were depressed, and 42% ($n=80$) had a change in their sleep patterns (Vessey et al., 2009).

Clearly, WPB takes a toll on the nurse's physical and mental health. It is vital that nurse researchers find a way to decrease the negative effects of bullying on nurses. The negative effects of bullying can be decreased by eliminating bullying in the workplace, or by finding a means to protect nurses from the negative effects of bullying. Resilience mediates the negative effects of stress (Larrabee et al., 2010; Mealer et al., 2012; Simoni et al., 2004) and may also mediate the negative effects of WPB.

Intent to Leave

Healthcare organizations depend on their nurses to provide quality patient care; and are interested in factors that impede the delivery of patient care. Many studies have examined nurses' intent to leave the healthcare organization in response to WPB. For example, Houshmand et al. (2012) found nurses ($N=357$) have higher intent to leave the organization when they are bullied ($\beta=0.08$, $p < 0.05$). This research also found evidence

that personal exposure is not necessary; simply being in an environment of WPB can influence intent to leave (Houshmand et al., 2012). Johnson and Rea (2009) found that nurses who were bullied were twice as likely ($\chi^2=15.2$; $df = 2$; $p < 0.001$) to leave their position within the next two years. Simons (2008) found a correlation between bullying and intent to leave in new nurses in Massachusetts ($r = 0.51$, $p < 0.001$). Roche, et al. (2010) found similar results in research with nurses in Australia ($N=2487$); nurses who perceived emotional abuse were more likely to leave their job ($r = .21$ $p \leq 0.05$).

Nursing turnover causes significant issues for healthcare systems, and the patients they serve. According the Robert Wood Johnson Foundation (RWJF) the financial cost of replacing a registered nurse ranges from \$24,000 to over \$64,000 (RWJF, 2009). Another cost associated with nurse turnover is the loss of nursing expertise at the bedside. This cost is more difficult to quantify but directly impacts the healthcare system and the level of patient care that is delivered (Spivak, Smith, & Logsdon, 2011).

Conclusion

This review has examined research published on WPB in nursing in the past decade. WPB continues to exist in the nursing profession. Research has confirmed that WPB occurs in various healthcare settings around the world. Bullying negatively influences a nurses' physical and mental health and increases their intent to leave their position. Resilience is personal factor that may decrease the negative physical and mental effects that occur when exposed to WPB.

It will take time to change the culture of bullying in the healthcare environment. Despite years of zero tolerance programs, WPB is still present in the nurse's work

environment; therefore, it is important to examine ways that victims can garner some level of protection from bullying. Nursing research is needed to examine the prevalence of bullying in different work settings. Work settings with low level or no reported bullying should be examined to find the elements that decrease the level of bullying. While some researchers are working on decreasing bullying rates, other research is needed to find factors that protect nurses from the negative effects of WPB.

CHAPTER III

METHODS

The purpose of this study was to examine the prevalence of bullying in a sample of North Carolina nurses employed in hospital settings. This study also explored the impact bullying had on nurses' physical health, mental health, and intent to leave the unit or organization. Additionally, this study examined if nurses' resilience mediates the negative effects of bullying on physical health, mental health and intent to leave their position or the organization. This chapter describes the methodology of the research including the research design, setting, sample, and the procedures used for data analyses.

The measures used in this study included both personal and organizational factors. Individual characteristics including perceived stress level (PSS) and level of resilience (RS-14) were also measured. Workplace bullying was measured using the Negative Acts Questionnaire Revised (NAQR). The study's dependent variables were physical health scores (PCS) and mental health scores (MCS) as measured by the 12-item short form health survey (SF12) along with two questions used to assess intent to leave the unit and intent to leave the organization.

Design

This research study utilized a correlational, cross-sectional study design to examine workplace bullying (WPB) among nurses. The cross-sectional design allowed data to be collected at one point in time so that associations of measures could be

explored (Burns & Grove, 2005). Correlational research provides a method to explore relationships between variables (Gliner, Morgan, & Leech, 2009). Nurses who are bullied have more physical health problems and mental health issues along with increased intent to leave their position or organization (Vessey et al., 2009). WPB is a problem in the nursing profession with previous prevalence rates ranging from 27.3% ($N=249$) (Johnson & Rea, 2009) to 80% ($N=62$) (Stagg et al., 2011) within the United States. Survey methodology was used in this study to allow a large group of nurses to be invited to participate in the research. An electronic survey ensured participant's anonymity along with convenience as participants could complete the survey at any computer with internet access.

Sample

Participants were RNs employed by a major healthcare system that includes 11 hospitals in North Carolina. Three hospitals were purposely selected as representative of different types of acute care hospitals that employ nurses. The first hospital was a large, tertiary hospital that offers a full spectrum of patient services and has obtained Magnet recognition. The second hospital specializes in short-term patient stays that are associated with surgical procedures. The third hospital was a small community based hospital located in a rural setting. These three hospitals employ approximately 1,712 registered nurses who provide direct patient care. All registered nurses at these three hospitals received an invitation to participate in the research via the healthcare system's electronic mail system.

The composite of nurses in North Carolina is similar to that of nurses in the United States. The median age of registered nurses is 46 in the South Atlantic region and in the United States (DHHS, 2010). Approximately 7% of nurses are male in the U.S. (DHHS, 2010), and North Carolina has 7.7% male nurses (NCBON, 2012). Nurses in the United States are 83.2% White and 5.4% Black (DHHS, 2010), North Carolina registered nurses are 83.8% Caucasian and 10.8% Black (NCBON, 2012). North Carolina nurses who have an associate degree as their highest level of nursing education comprise a larger percentage (41.5%)(NCBON, 2012) of nurses as compared to the United States (37.6%) (DHHS, 2010). While there are some differences, there are more similarities between North Carolina nurses and nurses in the United States. North Carolina provides a sample of nurses that can be considered representative of the nurse population in the United States.

Inclusion criteria

A sample of registered nurses, employed by three hospitals in the same healthcare system were recruited for this study. All registered nurses employed by the identified hospitals were invited to participate in the research study. The inclusion and exclusion criteria were incorporated in the letter of invitation; completed surveys were checked to insure respondents met the inclusion criteria before data were analyzed. Inclusion criteria included licensed registered nurses who provide direct patient care. Exclusion criteria for the study included people who were not registered nurses, or were not employed by one of the selected facilities. Nurses who had permanent management or supervisory responsibilities were also excluded.

Methods

The researcher met with members of the Professional Practice Council, and the Research Committee of the three hospitals. Members of the Professional Practice Council were recruited to serve as champions for the research at the unit level in the different hospitals. Council members were given posters for their units along with information and business cards with the URL link, to encourage nurses to complete the survey. Participants were recruited through the healthcare system's electronic mail system. An electronic letter explaining the purpose and importance of the study was sent to the electronic mailbox of all registered nurses who were employed at the selected hospitals. The survey link was embedded in the electronic mail; which directed them to an independent website. Access to the survey was available through any computer with Internet access. A reminder was sent to the invited participant's electronic mail address weekly after the initial contact. Nurses frequently work 12 hours shifts, consequently full-time employees are only at work three times a week. The survey was left open for four weeks to increase the chance that nurses will open and read their work electronic mail in that time frame. Researchers that have used electronic survey methodology to examine WPB among nurses have kept the survey open from three days (Berry, et al., 2012) to three months (Dumont, et. al., 2012).

An *a priori* power analysis using nQuery v 7.0 was done using multiple linear regression analysis (Gatsonis & Sampson, 1989), to test what increase in R^2 could be detected with an additional covariate with sufficient power ($\geq 80\%$) assuming 13 covariates were already in the model and a two-sided significance level of 0.05. Here,

even if the correlation between dependent variable and the 13 already modeled covariates was quite low (0.01), a small increase in R^2 could be detected with a sample of 185 participants.

The required sample size for this study was based on the analysis that requires the largest number of participants to detect meaningful differences with sufficient power. Therefore, the target sample size was based upon the mediation analysis needed for research questions 8-10. A sample size of 185 participants provided the ability to detect medium to medium small effect sizes of simple mediational effects (models with one mediator such as the one used in this study) with at least 80% power (Fritz & MacKinnon, 2007).

The response rate in nursing WPB research is diverse with a low response rate of 3% (Berry et. al., 2012) to a high response rate of 51% (Simons, 2008). The majority of nursing WPB research that used survey methodology reported response rates from 22% to 36% (Ceravolo et al., 2012; Guidroz, Burnfield-Gelmer, Clark, Schwetschenau, Jex, 2010; Hutton & Gates, 2008; Johnson & Rea, 2009; Stanley et. al., 2007). Researchers who used electronic surveys did not always report the response rate, most likely because the researcher was unable to determine the size of the sampling pool. The sample pool for this survey was 1712 nurses who were employed at select hospitals. Assuming the response rate would be similar to other research on nursing WPB a 22% response rate would result in 376 participants. A response rate of 9.25% would provide a sample size with the ability to detect medium effect size with at least 80% power.

Human Subjects Protection

The research plan received approval from the Institutional Review Board (IRB) at The University of North Carolina at Greensboro and the healthcare system's IRB. The invited sample pool received an electronic request to participate in the research that included an independent electronic link to access the survey. The link to the survey used a separate uniform resource locator (URL) which was not linked to participants email address or Internet Protocol (IP) address. Qualtrics survey software was used to collect data; the software was programmed to collect data entered on the survey only not information from IP or URL from participants. No identifying information was requested on the survey. Informed consent was obtained by participants accepting the statement of research required to enter the survey.

Instruments

Six instruments were used for data collection: (a) a demographic information form, (b) the Negative Acts Questionnaire-Revised (NAQR), (c) the Perceived Stress Scale (PSS), (d) Resilience Scale (RS-14), (e) 12-item Short Form Health Survey (SF12), and (f) intent to leave the unit and the organization. The survey was designed so the most non-threatening questions were presented first and questions that may be more sensitive were presented near the end of the survey (Dillman, Smyth, & Christian, 2009). This survey (appendix) began with questions about the nurse's place of work, experience, and education level. Questions regarding resilience were followed by questions of perceived stress level, the questions are similar in that they ask respondents to indicate how they feel or think about an item in their life. The NAQR asks respondents to indicate how

often they had been subjected to certain behaviors at work over the past six months. Three additional questions were added to clarify bullying experiences that are not captured on the NAQR. The additional questions ask if bullying had been witnessed, and who perpetuated bullying behaviors. These questions were added based on nursing research suggesting that those who witness bullying suffer similar effects as those who are bullied (Chipps & McRury, 2012; Einarsen et al., 2011; Houshmand et al., 2012). Two questions on intent to leave were followed by demographic information. Demographic measures included age, race, gender, height and weight. These questions were followed by the SF12, which measures personal physical and mental health. The last question was an open-ended free text question: Is there any information you like to share about nurse bullying in in the workplace? This question had been added to the survey to provide respondents a space to add information from their experience that was not specifically addressed on the survey.

Demographic Information Form

The demographic information form was developed for this study to obtain individual characteristics about the participants. The individual information collected included the participant's age, gender, race, height, weight, highest level of education in nursing, highest level of education, years of experience working as a nurse and length of time employed in their current unit. Information was also gathered on the type of unit in which they work, how long they have been in their current position and what shift they work. Further information was collected regarding the facility or unit, specifically if they have obtained special recognition from the American Nurses Credentialing Center

Magnet Recognition Program, North Carolina Nurses Association Hallmarks of Healthy Workplaces, or Beacon Award for Excellence. These measures were selected from a review of the literature on WPB among nurses (Lewis & Malecha, 2011; Vessey et al., 2009).

Negative Acts Questionnaire-Revised

The NAQR is the most commonly used tool in research studies that explore bullying in workplace settings. Nursing researchers have also used this tool to measure bullying in nurses in acute healthcare settings (Simons, 2008; Tsuno et al., 2010). The NAQR is a standardized instrument with 23 items that measure perceived exposure to bullying at work in the past six months. All items were written in behavioral terms and the word bullying was not used until the last question. The response for the first 22 items was a five point ordinal scale designed to measure the frequency of exposure: *never* =1, *now and again* =2, *monthly* =3, *weekly* = 4 and *daily* =5 (Einarsen et al., 2009). The last item on the questionnaires was a self-label identification of exposure to bullying which includes the definition for bullying with six options “no”, “yes, very rarely”, “yes, now and then”, “yes, several times per month”, and “yes, almost daily” (Einarsen et al., 2009). The NAQR has shown good internal consistency with Cronbach’s alpha of 0.90 (Einarsen et al., 2009). The questionnaire included three sub-sets work-related bullying, person-related bullying, and physically intimidating bullying. Einarsen et al. (2009) evaluated validity by examining the total NAQR, the General Health Questionnaire (GHQ) and psychosomatic complaints for associations, which were moderately strong, and statistically significant ($r = 0.68$, $p < 0.001$). The correlation between NAQR and

GHQ was moderate ($r = 0.43, p < 0.001$); among the three factors of the NAQR: person-related bullying, work-related bullying, and physically intimidating bullying; the strongest correlation was found in work-related bullying ($r=0.48, p < 0.001$) and psychosomatic complaints ($r = 0.41, p < 0.001$) (Einarsen et al., 2009). The factor which had the weakest correlation was sickness absenteeism ($r = 0.13, p < 0.001$).

The NAQR provided two summary scores, frequency of bullying behaviors and intensity of bullying. Any item behavior that was reported weekly (4) or daily (5) indicates an exposure to negative behavior. Intensity of negative behavior was measured by the sum total score (range 22-110). A higher score indicated a higher intensity of bullying behaviors. Notelaers and Einarsen (2009) (as cited in Einarsen, et al., 2011) found that an NAQR score between 33-44 indicates the respondent is “sometimes” bullied, a score greater than or equal to 45 indicates the respondent is a victim of workplace bullying (Einarsen et al., 2011).

Resilience Score

The Resilience Scale (RS-14) is a 14 item self-reported inventory designed to measure resilience (Wagnild, 2009). Resilience is a dynamic process of adaptation in response to ever-changing demands, stressors, and adversity with the goal of maintaining equilibrium (Herrman et al., 2011; Pipe et al., 2012). There are five characteristics of resilience: (a) a purposeful life, (b) perseverance, (c) equanimity, (d) self-reliance, and (e) existential aloneness (Wagnild, 2009). Responses are scored on a seven point Likert scale (strongly disagree to strongly agree). The RS-14 has been used to measure resilience in a variety of populations including adolescents, young and middle aged adults

and senior adults. Wagnild (2009) conducted a review of research which used the resiliency scale (RS-14 and RS-25) to measure resilience and found higher resilience scores correlated with psychological well-being, health promoting activities, purpose in life, and sense of coherence, morale and forgiveness. Theoretically, resilience would be positively related to life satisfaction and morale, and inversely related to depression (Wagnild, 2011). The RS-14 was correlated with Life Satisfaction Index ($r = 0.37$), Geriatric Center Morale Scale ($r = 0.31$), and Beck Depression Inventory ($r = -0.41$) (Wagnild, 2011). The RS scores were inversely associated with stress, depression, anxiety and hopelessness (Wagnild, 2009). Cronbach's alpha coefficient ranged from 0.91 to 0.94 which indicates good internal consistency (Wagnild, 2011). The resilience score from the RS-14 was obtained by summing all items; possible scores range from 14-98. Scores of 14-56 indicate very low levels of resilience; 57-64 is low, 65-73 moderately low, 74-81 moderately high, 82-90 high and 91-98 very high levels of resilience (Wagnild, 2011).

Perceived Stress Scale

The Perceived Stress Scale (PSS) has been widely used to measure the perception of stress. The PSS was originally developed to assess stress levels of individuals living in the community with at least a junior high school level of education (Cohen et al., 1983). The PSS consists of 10 items in which the respondents are asked questions about how often they have felt or thought a certain way in the past month (0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, 4 = very often) (Cohen et al., 1983). The PSS has been reported with adequate internal consistency with a Cronbach's alpha coefficient of

0.78 (Cohen & Williamson, 1988). Data from a large telephone survey (N= 2387) was used to compare the PSS to other instruments or self-reported data. PSS scores were correlated with reports of the amount of stress experienced during an average week ($r = 0.39$); the number of “life events” ($r = 0.32$) and decreased satisfaction with life ($r = 0.47$) with all measures being statistically significant (Cohen & Williamson, 1988). A PSS score was created by reversing coding items 4, 5, 7 and 8 and summing the reverse code items with the remaining items.

12-item Short Form Health Survey (SF12)

The SF12 is a general health survey that determines general health status by measuring eight domains of functioning and well-being. The eight domains are summarized into physical component summary (PCS) and mental health component summary (MCS). The PCS is largely determined from the physical function (PF), role-physical (RP), bodily pain (BP) and general health (GH) domains (Ware et al., 2010). The domains that contribute to the MCS are vitality (VT), social functioning (SF), role-emotional (RE) and mental health (MH) (Ware et al., 2010). Cronbach’s alpha is 0.91 for the PCS and 0.87 for the MCS measure (Ware et al., 2010).

The SF12 has been used to measure general health in a variety of populations, including nurses (Palumbo, Wu, Shaner-McRaie, Rambur, & McIntosh, 2012). A comparison of scoring algorithms analyzed SF12v2 from over 50,000 Americans, confirming the validity of the SF12 across American populations (Fleishman, Selim, & Kazis, 2010).

Intent to Leave

Intent to leave was measured using a 5-point Likert scale to indicate how likely the participant is to leave their current unit or the organization in the next 12 months. Intent to leave is frequently used as a measure of WPB in nursing (Laschinger et al., 2009; Simons, 2008). Intent to leave is often reported as a dichotomous yes or no question (Simons, 2008). However, a Likert scale allows for a clearer understanding of the strength of the nurses intent to leave the unit or organization (Hogh et al., 2011; Houshmand et al., 2012; Laschinger et al., 2009; Simons, 2006).

Data Analyses Plan

The survey was developed based on a review of the literature. Qualtrics software was used to format and administer the survey. The data were checked for missing information and corrected if erroneous. The data were checked for missing or questionable responses prior to further analysis. Patterns of missing data were examined, and if the data were randomly dispersed and the amount of missing data was small (<5%) then no further missing data adjustment was considered (Tabachnick & Fidell, 2007). Where the pattern of missing data was not random a statistician was consulted to perform sensitivity analysis for missingness (Tabachnick & Fidell, 2007). The data were exported to SPSS (IBM Corp. Armonk, NY), the statistical software used for analyses of data along with *Mplus* (Muthén & Muthén, 1998-2012). Descriptive statistics were performed to assess for outliers. Assumptions of analyses were checked including normality, linearity, and homoscedasticity where appropriate. The data were inspected to determine if they are theoretically out of range values. Multicollinearity was explicitly checked in

the regression analysis. A two-sided p -value <0.05 was considered statistically significant.

Data Analyses for Specific Aims and Research Questions

The specific aims and associated research questions with data analyses plan.

1. Examine the prevalence of nurses who experience bullying in acute care work settings. .

Question (Q) 1: What proportion of nurses experience bullying in the workplace as measured by the NAQR?

Descriptive statistics were used to estimate the proportion of nurses who have experienced WPB as measured on the NAQR. Nurses who responded positively to the question asking if they have been bullied in the past six months are considered bullied.

2. Describe the relationship of the effects of bullying to physical and mental health and intent to leave in nurses who work in hospitals..

Q2. Is there a relationship between bullying (NAQR) and physical health (PCS of SF12) in nurses? ?

Simple linear regression was used to assess the relationship of NAQR scores with the PCS of SF12. NAQR was the primary independent variable and the PCS of the SF12 was the dependent variable. Regression assumptions were checked with residuals analysis.

Q3. Is there a relationship between bullying (NAQR) and mental health (MCS of SF12) in nurses?

Simple linear regression was used to assess the relationship of NAQR scores with the MCS of SF12. NAQR was the primary independent variable and the MCS of the SF12 was the dependent variable. Regression assumptions were checked with residuals analysis.

Q4. Is there a relationship between bullying (NAQR) and intent to leave in nurses?

Simple linear regression was used to assess the relationship of NAQR scores with the intent to leave questions. NAQR is the independent variable and the two intent to leave items are continuous dependent variables. Regression assumptions were checked with residuals analysis.

3. To examine the influence of individual factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level and resilience level) and organizational factors (type of unit, type of hospital, shift worked) on physical health (PCS), mental health (MCS) and intent to leave in nurses who have experienced workplace bullying.

Q5. Do personal factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level, resilience level) or organizational factors (type of unit, type of hospital, and shift worked) explain the variance in physical health (PCS of SF12) in nurses who have experienced workplace bullying?

This question was analyzed using multiple linear regression which allowed the relationships between one continuous dependent variable (PCS) and several independent

variables to be modeled simultaneously (Tabachnick & Fidell, 2007). The dependent variable was the PCS score of the SF12. The independent variables were age, gender, race, education, years in position, years of experience, BMI, perceived stress level score, resilience level score, type of hospital and unit where employed, shift worked and if the hospital has special recognition. The proportion of variation explained in physical health was estimated using R^2 and adjusted R^2 statistics from the multiple linear regression modeling. Regression assumptions were checked with residuals analysis and multicollinearity diagnostics.

Q6. Do personal factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level, resilience level), and organizational factors (type of unit, type of hospital and shift worked) explain the variance in mental health (MCS of SF12) in nurses who have experienced workplace bullying?

This question was analyzed using multiple linear regression which allowed the relationships between one dependent variable and several independent variables to be examined (Tabachnick & Fidell, 2007). The dependent variable was the MCS score of the SF12. The independent variables were age, gender, race, education, years in position, years of experience, BMI, perceived stress level score, resilience level score, type of hospital and unit where employed, shift worked and if hospital had special recognition. The proportion of variation explained in mental health was estimated using R^2 and adjusted R^2 statistics from the multiple linear regression modeling. Regression assumptions were checked with residuals analysis and multicollinearity diagnostics.

Q7. Do personal factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level, resilience level), or organizational factors (type of unit, type of hospital and shift worked) explain the variance in intent to leave in nurses who have experienced workplace bullying?

This question was analyzed using multiple linear regression which allowed the relationships between one dependent variable and several independent variables to be examined (Tabachnick & Fidell, 2007). The continuous dependent variable was intent to leave unit and intent to leave employer. The independent variables were age, gender, race, education, years in position, years of experience, BMI, perceived stress level score, resilience level score, type of hospital and unit where employed, shift worked and if hospital has special recognition. The proportion of variation explained in intent to leave was estimated using R^2 and adjusted R^2 statistics from the multiple linear regression modeling. Regression assumptions were checked with residuals analysis and multicollinearity diagnostics.

4. To explore the influence of resilience on physical health, mental health and intent to leave in nurses who have experienced workplace bullying.

Q8. When controlling for personal factors (age, gender, race, education, years in position, years of experience, BMI) and perceived stress level, does resilience act as a mediator on physical health (PCS) in nurses who have experienced workplace bullying?

Mediation was used to model the relationship between variables because there is a hypothetical casual sequence between variables (Tabachnick & Fidell, 2007). In this example, bullying is the independent variable of interest. Physical health (PCS) was the dependent variable. Resilience was the mediator if (a) there was a significant relationship between bullying and PCS, (b) there was a significant relationship between bullying and between resilience, (c) resilience still predicted PCS after controlling for bullying and (4) the relationship between bullying and PCS decreased with resilience in the equation (Baron & Kenny, 1986). The following diagram (Figure 2) without inclusion of personal factors or perceived stress level helps illustrate the hypothesized relationship that was tested:

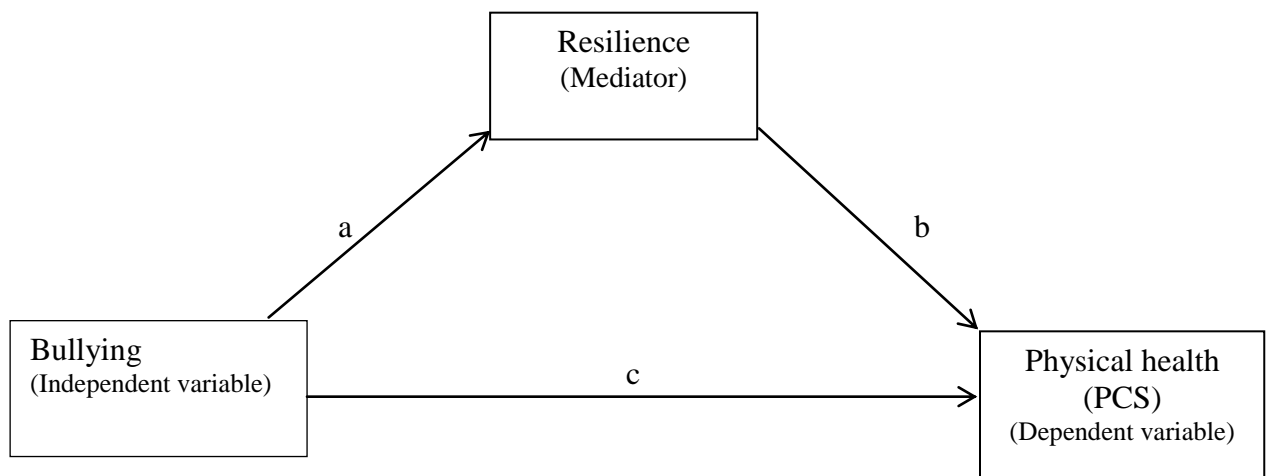


Figure 2. Hypothesized Mediation Relationship of Bullying, Resilience and Physical Health

In this model, two paths influence physical health (path *b* and path *c*). Path *c* represents a direct path between bullying and physical health (PCS). Path *b* depends on

the influence of resilience on physical health, while path *a* represents the path between bullying and resilience. The above modeling was performed, adjusting for personal factors and perceived stress level, and the hypothesized mediation effect was tested with path analysis using *Mplus*.

Q9. When controlling for personal factors (age, gender, race, education, years in position, years of experience, BMI) and perceived stress level, does resilience act as a mediator on mental health (MCS) in nurses who have experienced workplace bullying?

A similar approach to that of Q8 using path analysis was performed to assess if resilience acts as a mediator on the effects of bullying on mental health using MCS of SF12.

Q10. When controlling for personal factors (age, gender, race, education, years in position, years of experience, BMI) and perceived stress level, does resilience act as a mediator on intent to leave in nurses who have experienced workplace bullying?

A similar approach to that of Q8 using path analysis was performed to assess if resilience acts as a mediator on the effects of bullying on each of the two intent to leave items.

Summary

The purposes of this study to examine the prevalence of bullying in a sample of nurses employed in hospital settings. This study also explored the impact bullying had on nurses' physical health, mental health, and intent to leave the unit or organization.

Additionally, this study examined if nurses' resilience mediates the negative effects of bullying on physical health, mental health and intent to leave their position or the organization. The NIOSH model of job stress was used to guide this research.

CHAPTER IV

RESULTS

The purpose of this study was to examine workplace bullying among North Carolina nurses. Specifically, this study examined if resilience mediates the effects of bullying on nurses physical and mental health, and intent to leave the unit or organization. This chapter presents the statistical analyses of the data. First, the sample is described in detail. Then the study results are presented along with basic psychometrics for instruments followed by analysis of results for each research aim and question.

Sample

Participants in this study were registered nurses who were employed at one of three hospitals, which belong to the same healthcare organization. To reach all employed registered nurses the nurse managers were asked to forward an electronic mail invitation to participate. In addition to recruitment through electronic mail, posters were also hung in individual units. Members of the Professional Practice Committee at each hospital assisted in encouraging nurses to participate. A total of 182 RNs completed the electronic survey. The hospital employs 1,712 registered nurses at the three facilities; the response rate to the survey was 10.6 percent.

Preliminary Examination of Data

The survey responses were collected using Qualtrics Software (Provo, UT). Data analyses were completed using International Business Machines Statistical Package for the Social Sciences software version 20 (SPSS)(IBM Corp., Armonk, NY) and *Mplus* version 7 (Muthén & Muthén, 1998-2012). Frequencies and descriptive statistics were calculated on all variables to assess for distribution characteristics, missing data and outliers. Analysis assumptions were checked and the data were analyzed for normality, where appropriate.

Sample Demographics

The sample was comprised of 182 registered nurses who worked for one of three hospitals in North Carolina. The majority of the sample was Caucasian (90.3%) and female (95.4%). Participants' ages ranged from 23-67, where the mean age was 42.97 ($SD = 11.37$). The majority of the sample worked the day shift (62.1%) and in specialty units (55.5%). Table 1 provides specific information regarding the demographics of the sample.

Some patient care units were under represented in this sample of nurses. Therefore, the patient care units were combined into two categories for statistical modeling: specialty units and medical surgical units. The specialty units included critical care, emergency, pre-operative, intra-operative, post-operative, specialty procedures and telemetry. The medical surgical units included medical surgical units, mental health, obstetrics and pediatric units.

Table 1

Demographic Statistics of Sample (N= 182)

Variable	Minimum	Maximum	N (%) or Mean \pm SD*
Age	23	67	42.97 \pm 11.37
Gender			
Male			7 (4.6%)
Female			146 (95.4%)
Race			
Caucasian			139 (90.3%)
Other (including biracial)			15 (9.7%)
Years in current position	0	36	6.93 \pm 7.34
Years as RN	1	43	15.37 \pm 11.58
Nursing education			
Associate Degree or Diploma			94 (52.2%)
Baccalaureate or Master's Degree			86 (47.8%)
Unit worked			
Specialty units:			101 (55.5%)
Critical Care			34 (18.7%)
Emergency			23 (12.6%)
Pre-op, OR, PACU			20 (11.0%)
Special procedures			16 (8.8%)
Telemetry			8 (4.4%)
Medical surgical units:			81 (44.5%)
Medical surgical unit			51 (28.0%)
Mental Health			14 (7.7%)
Obstetrics (Mother/baby)			9 (4.9%)
Pediatrics			7 (3.8%)
Shift worked			
Days			113 (62.1%)
Nights			69 (37.9%)
Magnet Status facility			157 (86.3%)

*standard deviation

Four instruments (PSS, RS-14, NAQR and SF12) required scores to be calculated. Scoring was calculated according to the recommendations of the instrument authors. To check for internal consistency Cronbach's alpha coefficient was estimated for each instrument. Cronbach's alpha is a measure of the reliability of the instrument; the higher the coefficient the greater the reliability (Polit, 1996). Cronbach's alpha should be above 0.70 which indicates that items in the scale are internally consistent (Gliner et al., 2009). The instruments had coefficient scores ranging from 0.824 to 0.937 and are presented in Table 2.

Table 2

Reliability Measurement for Instruments

Instrument	Cronbach's alpha coefficient
PSS	0.886
RS-14	0.913
NAQR	0.937
PCS SF12	0.824
MCS SF12	0.864

PSS

The PSS was used to measure nurses perceived stress level in their lives. The range of possible scores was 0-40, with higher scores indicating higher levels of overall stress (Cohen & Williamson, 1988). In this sample of nurses, the range of PSS was 1-33 with a mean of 13.76 ($SD=6.168$).

Cronbach's alpha for the PSS was 0.886, which indicates adequate level of reliability of the instrument. Other studies have reported alpha ranging from 0.84-0.86 (Cohen, Kamarck, & Mermelstein, 1983).

Resilience

Nurse's resilience level was measured using the Resilience Scale 14 (RS-14). The possible scores ranged from 14-98, with scores greater than 90 indicating high resilience (Wagnild, 2011). In the study sample the range of RS-14 scores was 44-98 with a mean of 84.19 ($SD=8.865$). Only 9.3% ($n=15$) of the sample had low or moderately low levels of resilience and 23.1% ($n=37$) had moderate levels of resilience. Some nurses left comments that indicate they have a high level of resilience. For example, one nurse wrote:

know there are uphill climb, downhill slide, curves, detours, stops, lumps and bumps in life I keep my GOD first and for most then (sic) he will carry through it all. Life is not a straight line and never will be.

Another nurse wrote "accept the things I can't (change), therefore I will learn and grow with them to better my life". These comments reflect that these nurses have a life with purpose. Purposeful life is one of the most important characteristics of resilience.

Cronbach's alpha was 0.913 for the RS-14. This alpha coefficient indicated adequate reliability for the instrument. The Cronbach's alpha obtained in this study was similar to other studies that reported alpha coefficients of 0.85-0.94 (Wagnild, 2011).

Bullying

Bullying was measured using the NAQR, which is a standardized instrument with 23 items that measure perceived exposure to bullying in the past six months. The first 22 items measure the frequency of exposure. The last item of the instrument was a self-label identification of exposure to bullying that included the definition of bullying. The intensity of bullying was determined by summing the scores from the first 22 items. A score of 45 or higher indicated an intense level of bullying (Einarsen et al., 2011).

The NAQR measures specific behaviors that are associated with bullying. These behaviors are separated into three categories (a) work-related bullying, (b) person-related bullying, and (c) physically intimidating bullying (Einarsen et al., 2009). The significant findings from this study are presented according to the category. Work-related bullying includes behaviors where the victim's opinions or views are ignored. In this study a majority of nurses 57.5% ($n=92$) reported this form of bullying. A majority of nurses 54.1% ($n=86$) also reported being exposed to unmanageable workloads, and 51.5% ($n=84$) of the participants had information withheld from them which affected their ability to perform their job. Almost half the nurses, 48.4% ($n=77$) reported that they were ordered to work below their level of competence. Some of the results from the NAQR are displayed in Table 3.

Table 3

Frequency of Bullying Behaviors

Bullying measure	N (%)
Proportion of nurses who experienced bullying	64 (40%)
Work related bullying	
Had views or opinions ignored	92 (57.5%)
Exposed to unmanageable workloads	86 (54.1%)
Information which affects your performance	84 (41.5%)
Ordered to work below their level of competence	77 (48.4%)
Person-related bullying	
Ignored or excluded by coworkers at work	91 (56.5%)
Have gossip or rumors spread about them	74 (46.0%)
Experience humiliation of ridicule related to work	73 (43.3%)
Physically intimidating bullying	
Target of spontaneous anger	64 (39.8%)

The last question of the survey was an open-ended question that allowed participants to provide comments they felt were relevant to the topic. One nurse reported, “Being ignored while speaking, or being constantly contradicted.” Several participants felt the bullying came from nursing leadership: “most of the bullying occurring in the workplace stems from leaders and their positions”, and “bullying comes from upper management giving impossible workloads and taking away RN and patient rights to save time and money for the company”. Other nurses expressed concern about resources and workload “I don’t have the resources to do my job because of a lack of ancillary staff (nursing assistant and housekeepers)” and described bullying from leadership “a lot of pressure given to RNs to get patient transferred/discharged quickly to empty beds for admissions so often unable to take a break”. These comments reflect the pressure and frustration nurses felt while trying to deliver quality patient care while being bullied.

Person-related bullying behaviors include being ignored or excluded by co-workers in the workplace. In this study 56.5 % ($n=91$) of nurses reported this type of bullying. A significant number of nurses, 46 % ($n=74$), reported that gossip or rumors were spread about them at work. Almost half of bullied nurses 45.3 %, ($n=73$) report they experienced humiliation and ridicule related to their work. Several comments were received that referred to person-related bullying from participants. Humiliation and ridicule were often expressed as name-calling. “I was told I was stupid, and to ‘go back to school until you stop asking such stupid questions’”. Another nurse reported, “I often have remarks made toward me and some of my co-workers that are hurtful”. Remarks made in public were also described, “We are often scolded in front of other employees by the nurse manager”, and “younger nurses can be overbearing and unkind...with their meanness and attitude. They are above all rules and untouchable.”

Physically intimidating bullying behaviors were less common than work-related bullying or person related bullying. Significant types of physically intimidating bullying included 39.8% ($n=64$) of bullied nurses’ report they were the target of spontaneous anger or rage. Intimidating behaviors such as finger-pointing, invasion of personal space, shoving or physically blocking their way were reported by 23.9% ($n=38$) of nurses. No comments were received that addressed physical-intimidating bullying behaviors.

The cumulative NAQR score had a range from 22-97 with a mean of 35.89 ($SD=14.43$). The instrument score possible range is from 22-110 with the cut score for bullying based on intensity at 45 (Einarsen et al., 2011). In this sample, only 5% ($n=26$) met the criteria for severe bullying. This contrasts with the 40% ($N=160$) of nurses who

stated they were bullied. One reason for this difference may be the frequency of bullying activities. In fact, 16.9% ($n=27$) of nurses who said they were bullied indicated that the exposure was rare.

In this sample, 47.5% ($n=46$) of nurses witnessed co-workers being bullied. A small number 2.2% ($n=4$) of nurses admitted that they have participated in bullying a co-worker. Nurses were asked to identify the perpetrator of bullying behaviors. Registered nurses were identified as the culprit of bullying by 28.6 % ($n=52$) of respondents. Nurse leaders were identified as the perpetrator of workplace bullying (WPB) by 16.5% ($n=30$) of the sample, medical doctors were identified by 14.8% ($n=27$), patients were recognized by 13.7 % ($n=25$), family or visitors 12.6% ($n=23$), and nursing assistants 12.1% ($n=22$).

SF12 PCS

The Physical Component Summary (PCS) of the SF12 included the scores for eight domain scores and transforms the items into a single score that can be used to measure physical health (Ware et al., 2010). The possible range of scores was from 0-100. The raw data scores from the study sample of the SF12 PCS ranged from 25-100 with a mean of 82.24 ($SD=15.3$).

The Cronbach's alpha for the PCS of the SF12 was 0.824 in this study. This suggests that the PCS has adequate reliability in this study. This finding is above the 0.70 threshold for reliability (Polit, 1996), but it is lower than the coefficient alpha 0.91 reported in the SF12 scoring guidelines (Ware et al., 2010).

SF12 MCS

The Mental Health Component Summary (MCS) of the SF12 included the scores from the eight SF12 domain scores and transformed the items into a single score than can be used to measure mental health (Ware et al., 2010). The possible range of scores was 0-100. In this study sample the raw data scores ranged from 6-100 with a mean score of 75.16 ($SD=17.96$).

The Cronbach's alpha coefficient for the MCS of SF12 was 0.864. This indicates the instrument had adequate reliability with a level greater than 0.70 (Polit, 1996). The Cronbach's alpha for the MCS in this study (0.864) was similar to the coefficient reported (0.87) in the SF12 scoring guide (Ware et al., 2010).

The correlation of each variable was calculated and is displayed in Table 4.

Table 4

Correlation between Variables

Variable	Correlation														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Bullying															
2. Age	-.111														
3. Education	-.153	-.099													
4. Gender	.045	.118	-.084												
5.. Race	.018	-.072	.064	.056											
6. Yrs as RN	-.056	.759*	-.002	.206*	-.085										
7. Yrs in current unit	-	.453*	-.050	.119	-.102	.524*									
8.BMI	.189*	-.104	-.055	.000	-.102	-.076	-.085								
9. PSS	-	-	-	.015	-.110	-	-.097	.154							
10. RS14	.316*	.200*	.209*			.173*									
	-.55	-.093	.173-	-.060	.064	-.043	-.067	.028	-						
									.467*						
11. Unit	.004	.232*	-.074	.040	-.072	.122	.098	-.087	-.107	.066					
12. Shift	-.003	.177*	.055	.100	-.095	.265*	.254*	.053	-.086	.014	.311*				
13. PCS	-.154	-	.212*	.009	-.031	-.086	.026	-	-	.246*	.063	.013			
		.200*						.415*	.299*						
14. MCS	-	.098	.314*	.000	-.024	.083	.077	-.131	-	.482-	.098	.080	.492*		
	.357*								.732*						
15. Intent to leave unit	.477*	-.124	-.085	.053	.200*	-.084	-	-.061	.210*	-.124	-.066	-	-.074	-	
							.217*					.281*		.225*	
16. Intent to leave organization	.081	-.049	.020	.081	.035	-.083	-.017	-.158	.051	-.046	-.032	-.049	-.012	-.106	.102

* indicates p -value ≤ 0.05

Research Questions

Research Aim 1

To examine the prevalence of nurses who experience bullying in acute care work settings.

Question 1

What proportion of nurses experience bullying in the workplace as measured by the NAQR?

The first 22 items of the NAQR measure the frequency of exposure to bullying. The last item of the instrument was a self-label identification of exposure to bullying that included the definition of bullying. The last question was used to estimate the prevalence of bullying. The proportion of nurses who experienced bullying in this study was 40% with a 95% confidence interval of (32.7%, 47.7%).

Research Aim 2

Describe the relationship of the effects of bullying to physical and mental health and intent to leave in nurses who work in hospitals.

Question 2

Is there a relationship between bullying (NAQR) and physical health (PCS of SF12) in nurses?

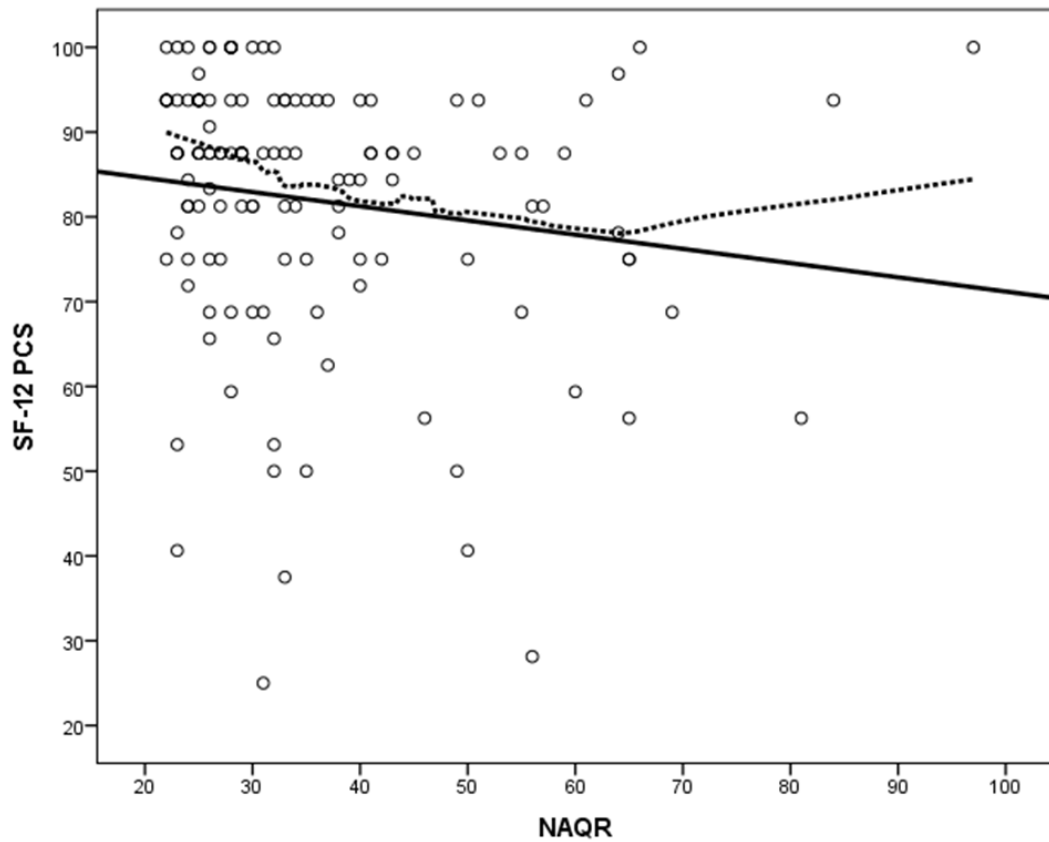


Figure 3. Scatterplot of SF12 PCS vs. NAQR with Linear and LOESS Fit Lines

The bivariate relationship between SF12 PCS scores and NAQR scores are shown in Figure 3. The trend appears to be reasonably linear and negative, implying as severity of bullying increases physical component scores decrease, although this finding was not statistically significant ($p=0.15$). Table 5 presents results of the simple linear regression of the dependent variables used for research question two.

Table 5

Simple Linear Regression for NAQR and SF12 PCS and Method for Missing Data

Listwise Deletion	FIML estimation
n=130, $R^2=0.024$ slope= -0.168 95% CI=(-0.356, 0.021) $p=0.080$	n=160, $R^2=0.023$ slope=-0.159 95% CI=(-0.387, 0.035) $p=0.150$

FIML estimation is Full-Information Maximum Likelihood.

The model for SF12 PCS using FIML estimation was estimated to be $\widehat{PCS} = -0.159 \times NAQR + 88.0$. The relationship is not statistically significant since the p -value for the test that the slope is equal to zero is $p = 0.15$, indicating that NAQR is not significantly related to the PCS. The $R^2 = 0.023$ indicating that 2.34% of variation in PCS scores is accounted for in a model with NAQR, which is very low. Thus, the relationship between NAQR and PCS is not statistically significant ($p = 0.15$) in a simple linear regression model using NAQR, and only accounts for a very small amount of variation in PCS scores.

Question 3

Is there a relationship between bullying (NAQR) and mental health (MCS of SF12) in nurses?

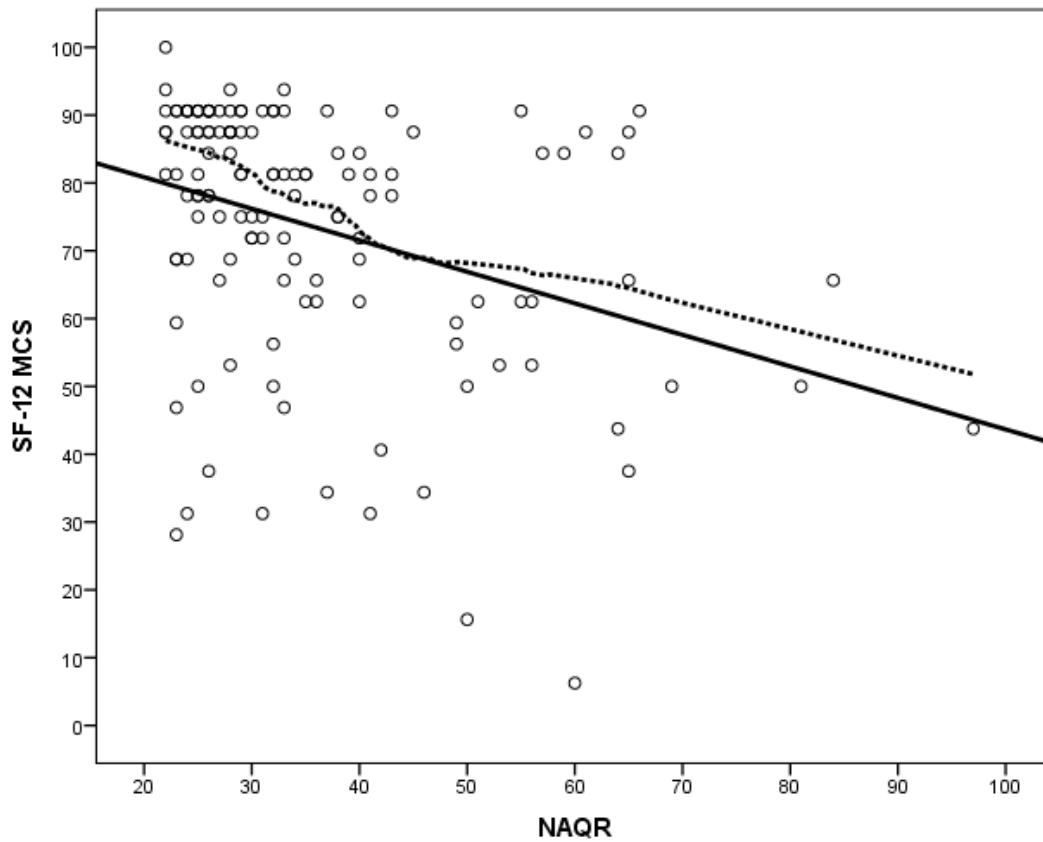


Figure 4. Scatterplot of SF12 MCS vs. NAQR with Linear and LOESS Fit Lines

The bivariate relationship between SF12 MCS scores and NAQR scores is shown in Figure 4. The trend appears to be reasonably linear and negative, implying as severity of bullying increases mental component scores decrease. The results of the simple linear regression of SF12 MCS scores on NAQR scores are shown in Table 6.

Table 6

Simple Linear Regression for NAQR and SF12 MCS and Method for Missing Data

Listwise Deletion	FIML estimation
n=130, $R^2=0.127$ slope=-0.465 95% CI= (-0.678, -0.252) $p<0.001$	n=160, $R^2=0.117$ slope=-0.429 95% CI=(-0.658, -0.222) $p<0.001$

FIML estimation is Full-Information Maximum Likelihood.

The model for MCS was estimated to be $\widehat{MCS} = -0.429 \times NAQR + 90.4$. The p -value for the test that the slope is equal to zero is $p < 0.001$, indicating that the NAQR is significantly related to the MCS. Since the slope is negative, NAQR scores are inversely related with MCS scores, as Figure 4 suggests. The R^2 is 0.117 indicating that 11.7% of variation in MCS scores is accounted for in this model. Thus, while the relationship between NAQR and MCS is statistically significant ($p < 0.001$), NAQR only accounts for a small amount of variation in MCS scores.

Question 4

Is there a relationship between bullying (NAQR) and intent to leave in nurses?

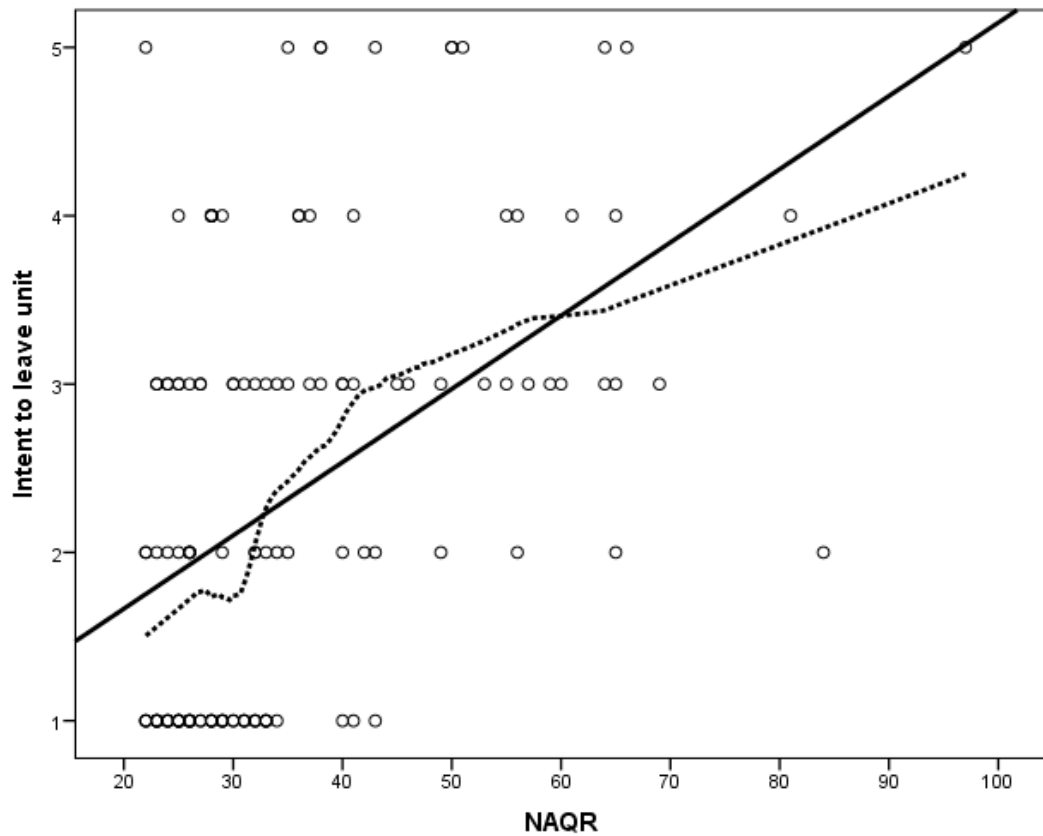


Figure 5. Scatterplot of Intent to Leave Unit vs. NAQR with Linear and LOESS Fit Lines

The bivariate relationship between intent to leave unit and NAQR scores is shown in Figure 5. The trend appears to be reasonably linear and positive, implying as severity of bullying increases intent to leave unit increases as well. The results of the simple linear regression of intent to leave unit on NAQR scores is shown in Table 7.

Table 7

Simple Linear Regression for NAQR and Intent to Leave Unit and Method for Missing Data

Listwise Deletion	FIML estimation
n=129, $R^2=0.228$ slope=0.044 95% CI= (0.029, 0.058) $p<0.001$	n=160, $R^2=0.228$ slope=0.044 95% CI=(0.030, 0.058) $p<0.001$
FIML estimation is Full-Information Maximum Likelihood.	

The estimated simple linear regression model for intent to leave unit (ILU) is $\widehat{ILU} = 0.044 \times NAQR + 0.780$. The relationship is statistically significant since the p -value for the test that the slope is equal to zero is $p < 0.001$. The R^2 is 0.228 indicating that 22.8% of variation in intent to leave unit scores is accounted for in the model with NAQR. Thus, while the relationship between NAQR and intent to leave unit is statistically significant ($p < 0.001$), this model using NAQR accounts for less than a quarter of the variation in intent to leave unit.

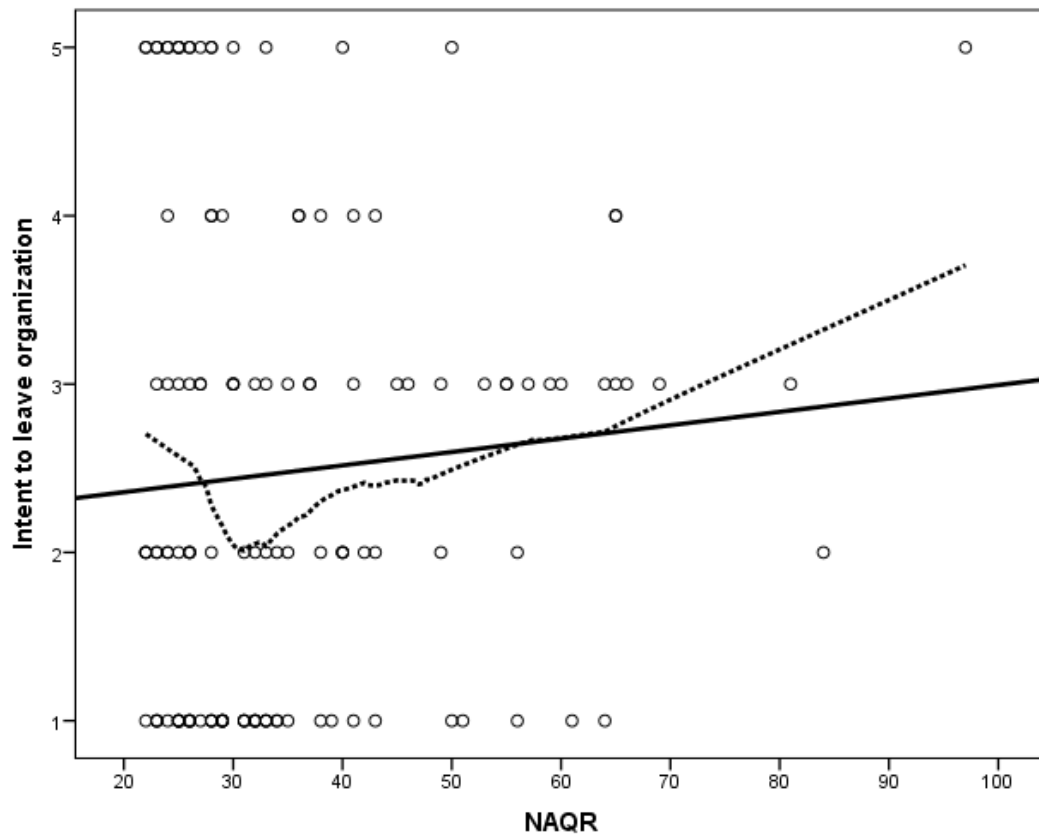


Figure 6. Scatterplot of Intent to Leave Organization vs. NAQR with Linear and LOESS Fit Lines

The bivariate relationship between intent to leave organization and NAQR scores is shown in Figure 6. The trend appears to be somewhat reasonably linear, weak, and positive, implying as severity of bullying increases intent to leave organization increases as well. The results of the simple linear regression of intent to leave organization on NAQR scores are shown in Table 8.

Table 8

Simple Linear Regression for NAQR and Intent to Leave Organization and Method for Missing Data

Listwise Deletion	FIML estimation
n=130, $R^2=0.007$ slope=0.008 95% CI= (-0.009, 0.025) $p=0.359$	n=160, $R^2=0.006$ slope=0.008 95% CI=(-0.009, 0.022) $p=0.339$

FIML estimation is Full-Information Maximum Likelihood.

The estimated model for intent to leave the organization (ILO) is $\widehat{ILO} = 0.008 \times \text{NAQR} + 2.09$. The relationship is not statistically significant since the p -value for the test that the slope is equal to zero is $p = 0.339$.

Research Aim 3

To examine the influence of individual factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level, and resilience level) and organizational factors (type of unit, type of hospital, and shift worked) on physical health (PCS), mental health (MCS) and intent to leave in North Carolina nurses who have experienced workplace bullying.

The questions that address this aim (Q5, Q6, and Q7) are similar with changes only in the dependent variable. Therefore, the summary results from the multiple linear regression analyses are presented in Table 9. The summary results table proceeds research question 6 and 7 and is presented after question 5.

Question 5

Do personal factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level, resilience level) or organizational factors (type of unit, type of hospital, and shift worked) explain the variance in physical health (PCS of SF12) in nurses who have experienced workplace bullying?

Table 9

*Summary Results from Multiple Linear Regression Analysis by Outcome and Method for Missing Data**

Dependent Variable	Listwise Deletion	FIML estimation
Q5. SF12 PCS	n=93, $F(13,79)=3.989$, $p<0.001$ $R^2=0.396$, Adjusted $R^2=0.297$	n=182, $\chi^2(df=13)=25.637$, $p=0.019$, $R^2=0.150$, Adjusted $R^2=0.084$
Q6. SF12 MCS	n=93, $F(13,79)=14.514$, $p<0.001$ $R^2=0.705$, Adjusted $R^2=0.656$	n=182, $\chi^2(df=13)=21.648$, $p=0.061$, $R^2=0.122$, Adjusted $R^2=0.054$
Q7. Intent to Leave Unit	n=93, $F(13,79)=2.803$, $p=0.002$ $R^2=0.316$, Adjusted $R^2=0.203$	n=182, $\chi^2(df=13)=493.312$, $p<0.001$, $R^2=0.936$, Adjusted $R^2=0.931$
Q7. Intent to Leave Organization	n=93, $F(13,79)=1.231$, $p=0.274$ $R^2=0.168$, Adjusted $R^2=0.032$	n=182, $\chi^2(df=13)=46.166$, $p<0.001$, $R^2=0.291$, Adjusted $R^2=0.236$

*Adjusted for: Age, Gender, Race, Education, Years of experience, Years with employer, BMI, Stress score, Resilience score, Unit, Magnet Hospital status, Shift, and NAQR bullying score. Overall tests for any significant predictors is given by F test for Listwise Deletion missing data method and by χ^2 test for FIML estimation missing data method; FIML estimation is Full-Information Maximum Likelihood.

The summary results from the multiple linear regression of the SF12 PCS scores are shown in Table 7. Using FIML estimation, the overall test for any significant associations with the person factors, individual characteristics and organizational factors was significant ($\chi^2=25.6$, $df= 13$, $p = 0.019$). The adjusted R^2 was 0.084 indicating that the multivariable model explained approximately 8.4% of the variation in PCS. The detailed results from the multiple linear regression of the SF12 PCS are shown in Table 10.

Table 10

Multiple Linear Regression of SF12 PCS

Numbers reported are: Estimate (<i>b</i>) (95% CI for <i>b</i>) <i>P</i> -value	Model using Listwise Deletion	Model using FIML estimation
Age (years)	-0.239 (-0.600, 0.123) 0.193	-0.251 (-0.501, 0.001) 0.051
Male vs. Female	-8.696 (-20.269, 2.876) 0.139	-0.453 (-0.970, 0.079) 0.092
Non-White vs. White	9.415 (-8.218, 27.047) 0.291	0.090 (-0.188, 0.320) 0.480
BSN/MSN vs. Less	2.704 (-2.442, 7.850) 0.299	-0.113 (-0.267, 0.020) 0.122
Years as RN	-0.103 (-0.452, 0.247) 0.561	0.086 (-0.092, 0.254) 0.327
Years Current Unit	0.282 (-0.129, 0.694) 0.176	-11.244 (-15.482, -7.068) <0.001

Body Mass Index (kg/m ²)	-0.920 (-1.310, -0.530) <0.001	-3.087 (-8.599, 2.779) 0.290
Perceived Stress Scale (PSS)	-0.609 (-1.116, -0.102) 0.019	-0.940 (-2.677, 0.586) 0.259
Resilience (RS-14)	0.193 (-0.160, 0.546) 0.279	-0.889 (-2.136, 0.528) 0.190
Specialty Unit vs. Other Unit	1.045 (-4.135, 6.224) 0.689	-3.095 (-8.868, 2.353) 0.280
Magnet Hospital vs. Non-Magnet	-0.529 (-7.963, 6.905) 0.888	0.124 (-4.912, 5.385) 0.963
Day Shift only vs. Other Shift	3.009 (-2.306, 8.323) 0.263	-2.076 (-5.760, 1.884) 0.286
Bullying Severity (NAQR)	0.072 (-0.112, 0.256) 0.440	-1.344 (-5.212, 2.413) 0.491
Model <i>n</i>	93	182
Overall test	$F(13,79)=3.989$, $p<0.001$	$\chi^2 (df=13)=25.637$, $p=0.019$
Model R^2	0.396	0.150
Model Adjusted R^2	0.297	0.084

Of the personal factors, greater years in current unit ($b = -0.113$, $p < 0.001$) was significantly associated with lower predicted means PCS scores while age was marginally significant ($p = 0.051$). Stress scores and resilience scores were both not significantly associated with the physical component scores. Bullying severity as measured by the NAQR was not significantly associated with the PCS ($p = 0.491$). Thus, only current years in unit and age explain a small amount the variance in physical health (PCS of SF12) while individual characteristics (perceived stress, resilience level), organization factors (type of unit, type of hospital and shift worked), and bullying was not associated with the PCS in this sample.

Question 6

Do personal factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level, resilience level), or organizational factors (type of unit, type of hospital and shift worked) explain the variance in mental health (MCS of SF12) in nurses who have experienced workplace bullying?

The summary results from the multiple linear regression of the SF12 MCS scores are presented in Table 10. Using FIML estimation, the overall test for any significant associations with the personal factors, individual characteristics, organizational factors was marginally significant ($\chi^2=21.6$, $df = 13$, $p = 0.061$). The adjusted R^2 was 0.054, indicating that only approximately 5.4% of the variation in MCS was explained by the multivariable model. The detailed results from the multiple linear regression of the SF12 MCS are shown in Table 11.

Table 11

Multiple Linear Regression of SF12 MCS

Numbers reported are: Estimate (<i>b</i>) (95% CI for <i>b</i>) <i>P</i> -value	Model using Listwise Deletion	Model using FIML estimation
Age (years)	0.258 (-0.074, 0.590) 0.126	-0.121 (-0.269, 0.057) 0.144
Male vs. Female	-11.434 (-22.064, -0.804) 0.035	-0.011 (-0.376, 0.349) 0.954

Non-White vs. White	3.717 (-12.479, 19.914) 0.649	-0.010 (-0.133, 0.123) 0.872
BSN/MSN vs. Less	7.693 (2.966, 12.420) 0.002	0.006 (-0.058, 0.074) 0.860
Years as RN	-0.300 (-0.621, 0.021) 0.067	0.061 (-0.047, 0.180) 0.286
Years Current Unit	0.223 (-0.155, 0.601) 0.243	-3.321 (-5.978, -0.729) 0.019
Body Mass Index (kg/m ²)	0.029 (-0.330, 0.387) 0.874	-0.598 (-4.605, 4.950) 0.808
Perceived Stress Scale (PSS)	-1.801 (-2.267, -1.335) <0.001	-1.305 (-2.308, -0.355) 0.009
Resilience (RS-14)	0.315 (-0.009, 0.639) 0.057	-0.005 (-0.826, 0.912) 0.991
Specialty Unit vs. Other Unit	0.354 (-4.403, 5.112) 0.883	-0.112 (-3.960, 3.234) 0.951
Magnet Hospital vs. Non-Magnet	2.046 (-4.783, 8.874) 0.553	0.358 (-2.489, 3.242) 0.807
Day Shift only vs. Other Shift	2.513 (-2.369, 7.394) 0.263	-2.343 (-4.834, 0.060) 0.062
Bullying Severity (NAQR)	-0.115 (-0.284, 0.054) 0.180	-1.779 (-4.215, 0.598) 0.146
Model <i>n</i>	93	182
Overall test	$F(13,79)=14.514,$ $p<0.001$	$\chi^2 (df=13)=21.648,$ $p=0.061$
Model R^2	0.705	0.122
Model Adjusted R^2	0.656	0.054

Of the personal factors, greater years in current unit $b=-3.321$, $p=0.019$ was most significantly associated with lower predicted mean MCS (while recognizing the overall

test for any significance was only marginally significant. No other personal factors were individually significantly associated with the mental component scores. Higher Perceived Stress Scale (PSS) were significantly associated with lower predicted mean MCS ($b=-1.305$; $p=0.009$). Resilience was not significantly associated with the MCS ($p=0.991$) in this model. NAQR bullying severity scores were not significantly associated with MCS ($p=0.146$). Thus, only one personal factor of years in current unit and one individual characteristic of perceived stress possibly explain a small amount of the variance in mental health (MCS of SF12) while organizational factors and bullying do not appear to be associated with MCS.

Question 7

Do personal factors (age, gender, race, education, years in position, years of experience, BMI), individual characteristics (perceived stress level, resilience level), or organizational factors (type of unit, type of hospital and shift worked) explain the variance in intent to leave in nurses who have experienced workplace bullying?

The summary of the two multiple linear regressions of intent to leave unit and intent to leave organization are presented in Table 10. Using FIML estimation, the overall test for any significant associations with the personal factors, individual characteristics, and organizational factors was significant for intent to leave unit ($\chi^2=493.3$, $df=13$, $p<0.001$). The adjusted R^2 was 0.931, indicating that approximately 93.1% of the variation in intent to leave unit was explained by the multivariable model, a high amount. The detailed results from the multiple linear regression of intent to leave unit are presented in Table 12.

Table 12

Multiple Linear Regression of Intent to Leave Unit

Numbers reported are: Estimate (<i>b</i>) (95% CI for <i>b</i>) <i>P</i> -value	Model using Listwise Deletion	Model using FIML estimation
Age (years)	-0.024 (-0.061, 0.012) 0.188	0.001 (-0.005, 0.006) 0.830
Male vs. Female	-0.475 (-1.643, 0.692) 0.420	-0.009 (-0.019, 0.001) 0.075
Non-White vs. White	-0.533 (-2.312, 1.245) 0.552	-0.002 (-0.006, 0.003) 0.441
BSN/MSN vs. Less	-0.117 (-0.637, 0.402) 0.654	0.001 (-0.001, 0.003) 0.317
Years as RN	0.018 (-0.017, 0.053) 0.315	0.001 (-0.002, 0.004) 0.560
Years Current Unit	-0.036 (-0.078, 0.005) 0.086	-0.036 (-0.135, 0.047) 0.443
Body Mass Index (kg/m ²)	0.010 (-0.029, 0.049) 0.610	0.006 (-0.123, 0.167) 0.935
Perceived Stress Scale (PSS)	-0.027 (-0.079, 0.024) 0.289	-0.004 (-0.039, 0.037) 0.851
Resilience (RS-14)	-0.032 (-0.067, 0.004) 0.078	0.042 (0.007, 0.081) 0.027
Specialty Unit vs. Other Unit	-0.563 (-1.085, -0.040) 0.035	-0.081 (-0.228, 0.057) 0.262

Magnet Hospital vs. Non-Magnet	-0.309 (-1.059, 0.441) 0.415	0.031 (-0.083, 0.151) 0.603
Day Shift only vs. Other Shift	0.013 (-0.523, 0.549) 0.961	-0.030 (-0.118, 0.062) 0.512
Bullying Severity (NAQR)	0.035 (0.017, 0.054) <0.001	1.884 (1.800, 1.962) <0.001
Model <i>n</i>	93	182
Overall test	$F(13,79)=2.803$, $p=0.002$	$\chi^2(df=13)=493.312$, $p<0.001$
Model R^2	0.316	0.936
Model Adjusted R^2	0.203	0.931

None of the personal factors was significantly associated with intent to leave unit. Interestingly, higher RS-14 resilience scores were associated with greater intent to leave unit in this model ($b=0.042$, $p=0.027$). No organizational factors were significantly associated with intent to leave unit. Greater bullying severity as indicated with higher NAQR scores were strongly significantly associated with intent to leave unit ($b=1.884$, $p<0.001$). Thus, only resilience and severity of bullying were correlated with intent to change unit in this multivariable model, but appeared to account for a large amount of the variance (93.1%) as the adjusted R^2 was 0.931.

Again using the FIML estimation, the overall test for any significant associations with the personal factors, individual characteristics, and organizational factors was significant for intent to leave organization ($\chi^2=46.2$, $df=13$, $p<0.001$). The adjusted R^2 was 0.291, indicating that approximately 29.1% of the variation in intent to leave

organization was explained by the multivariable model. The detailed results from the multiple linear regression of intent to leave organization are presented in Table 13.

Table 13

Multiple Linear Regression of Intent to Leave Organization

Numbers reported are: Estimate (<i>b</i>) (95% CI for <i>b</i>) <i>P</i> -value	Model using Listwise Deletion	Model using FIML estimation
Age (years)	0.016 (-0.026, 0.058) 0.446	0.134 (0.009, 0.253) 0.032
Male vs. Female	-0.558 (-1.903, 0.787) 0.411	0.194 (-0.056, 0.461) 0.141
Non-White vs. White	-1.403 (-3.452, 0.646) 0.177	0.038 (-0.074, 0.158) 0.513
BSN/MSN vs. Less	0.025 (-0.573, 0.623) 0.933	-0.205 (-0.297, -0.118) <0.001
Years as RN	-0.023 (-0.064, 0.017) 0.256	0.065 (-0.039, 0.158) 0.202
Years Current Unit	0.005 (-0.043, 0.053) 0.838	-0.989 (-6.006, 3.860) 0.692
Body Mass Index (kg/m ²)	-0.042 (-0.088, 0.003) 0.066	-1.898 (-5.709, 0.932) 0.252
Perceived Stress Scale (PSS)	-0.028 (-0.087, 0.031) 0.354	-0.666 (-1.526, 0.297) 0.151
Resilience (RS-14)	0.001 (-0.040, 0.041) 0.981	-0.537 (-1.195, 0.150) 0.116
Specialty Unit vs. Other Unit	-0.505 (-1.107, 0.097) 0.099	0.721 (-2.004, 3.500) 0.607

Magnet Hospital vs. Non-Magnet	-0.677 (-1.540, 0.187) 0.123	2.082 (-0.802, 4.930) 0.150
Day Shift only vs. Other Shift	-0.549 (-1.167, 0.069) 0.081	-1.003 (-3.300, 0.977) 0.353
Bullying Severity (NAQR)	0.006 (-0.015, 0.028) 0.549	0.232 (-2.017, 2.287) 0.833
Model n	93	182
Overall test	$F(13,79)=1.231,$ $p=0.274$	$\chi^2(df=13)=46.166,$ $p<0.001$
Model R^2	0.168	0.291
Model Adjusted R^2	0.032	0.236

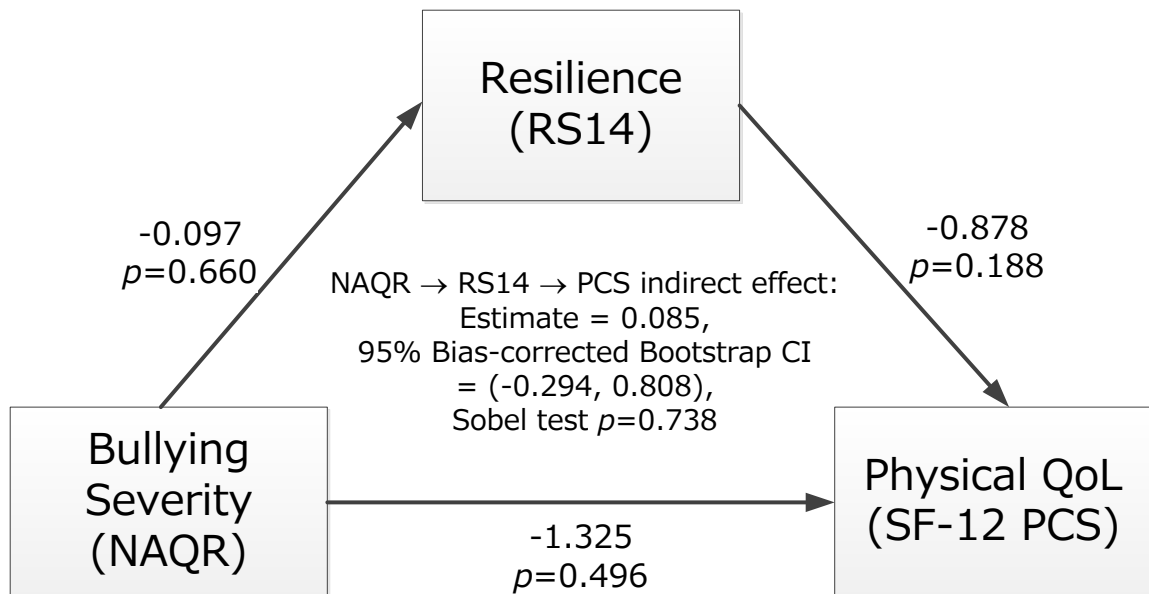
Older age ($p=0.032$) and lower education ($p<0.001$) were the only personal factors associated with intent to leave the organization. The individual characteristics of PSS and RS-14, or organizational factors were not significantly associated with intent to leave organization. Finally, NAQR scores were not associated with intent to leave organization ($p=0.833$). Thus, two personal factors, older age and lower education, were correlated with intent to leave organization in this multivariable model and account for a small amount of the variance (23.6%).

Research Aim 4

Explore the nature of the influence of resilience on physical health, mental health and intent to leave in nurses who have experienced workplace bullying.

Question 8

When controlling for personal factors (age, gender, race, education, years in position, years of experience, BMI) and perceived stress level, does resilience *act as a mediator* on physical health (PCS) in nurses who have experienced workplace bullying?



Adjusted for: Age, Gender, Race, Education, Years of experience, Years with employer, BMI, Stress score, Unit, Magnet Hospital status, and Shift

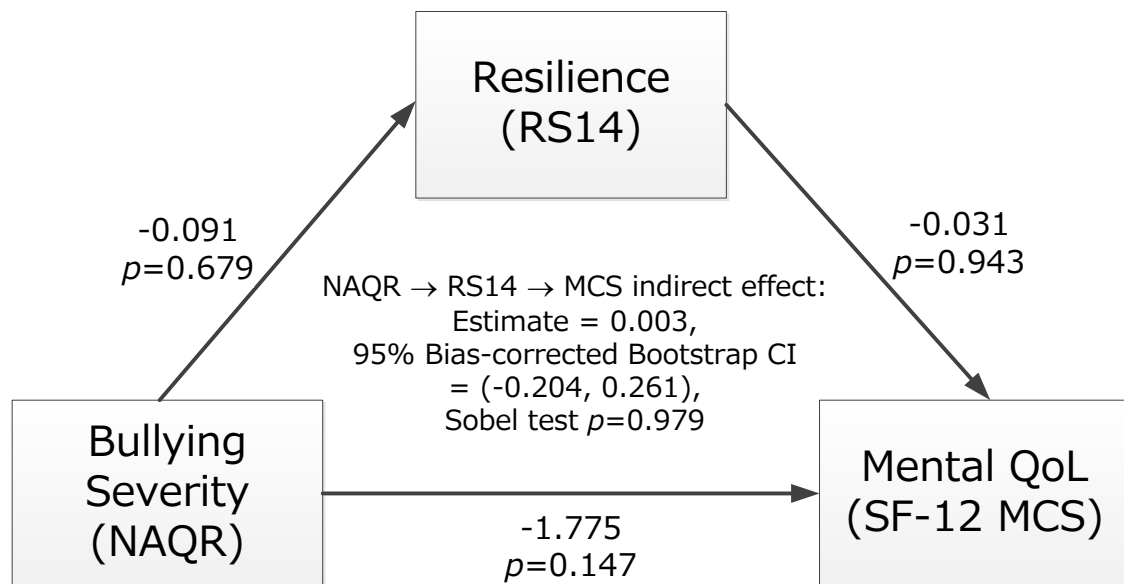
Figure 7. Mediation Results for Bullying and Resilience from Modeling of SF12 PCS

Figure 7 presents the mediation results from the path analysis modeling performed in *Mplus*. Here the direct effects of bullying severity scores ($p=0.496$) and resilience scores ($p=0.188$) for the PCS were not significant. The Sobel test for mediation effects of resilience on the PCS for bullying was not significant ($p=0.738$). In addition to the Sobel test an inspection of the 95% confidence interval (CI) estimated from bootstrapping using bias-corrected methods can indicate if mediation effects are present (MacKinnon, Lockwood, & Williams, 2004; Williams & MacKinnon, 2008). If the CI does not include zero, then one can conclude that there were significant mediation effects. Here, this 95% CI includes zero (-0.294, 0.808). Therefore, when controlling for

personal factors and perceived stress level, resilience does not *act as a mediator* on physical health PCS in nurses who have experienced workplace bullying in this analysis.

Question 9

When controlling for personal factors (age, gender, race, education, years in position, years of experience, BMI) and perceived stress level, does resilience act as a mediator on mental health (MCS) in nurses who have experienced workplace bullying?



Adjusted for: Age, Gender, Race, Education, Years of experience, Years with employer, BMI, Stress score, Unit, Magnet Hospital status, and Shift

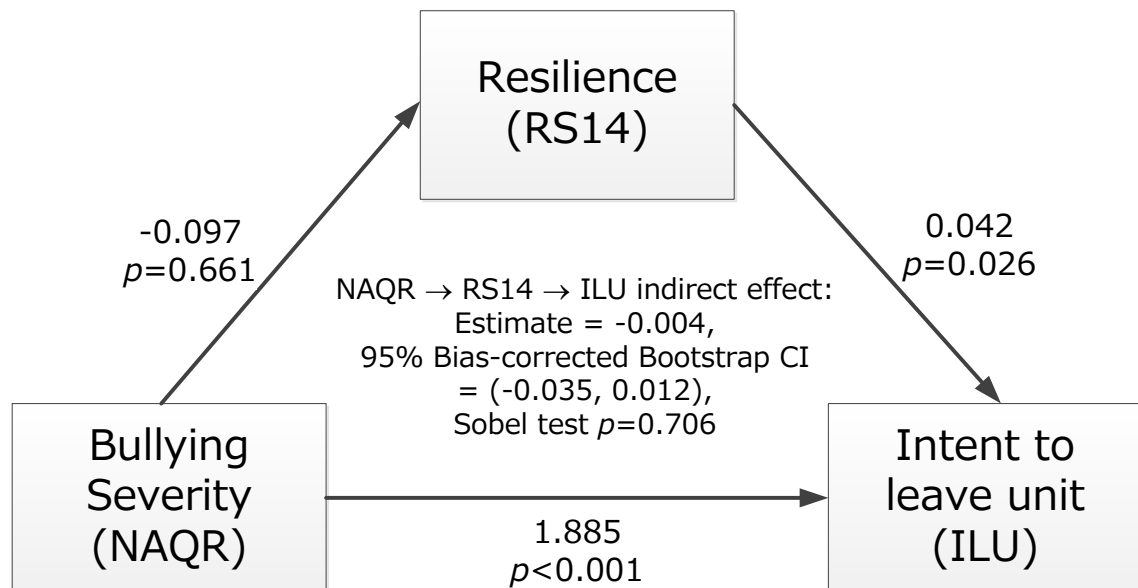
Figure 8. Mediation Results for Bullying and Resilience from Modeling of SF12 MCS

Figure 8 presents the mediation results from the path analysis modeling performed in *Mplus*. Here the direct effects of bullying severity scores ($p=0.147$) and resilience scores ($p=0.943$) for the MCS were not significant. The Sobel test for mediation effects of resilience on the PCS for bullying was not significant ($p=0.979$). In

addition, the 95% bias corrected bootstrap CI included zero (-0.204, 0.261). Therefore, when controlling for personal factors, and perceived stress level, resilience does not act as a mediator on mental health (MCS) in nurses who have experienced workplace bullying based on these results.

Question 10

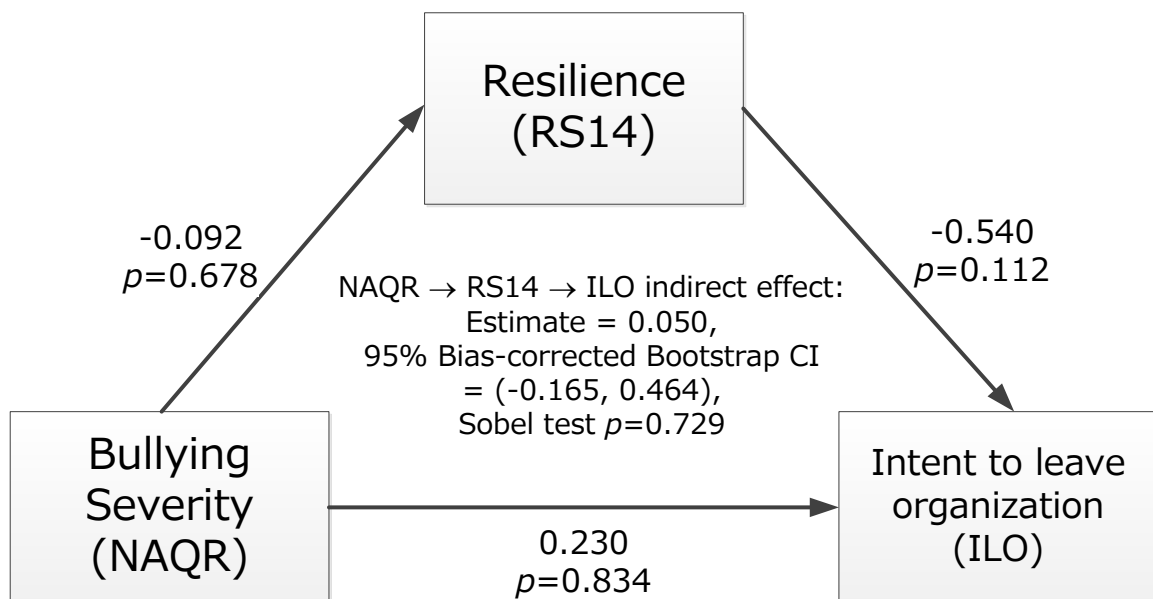
When controlling for personal factors (age, gender, race, education, years in position, and years of experience, BMI) and perceived stress level, does resilience *act as a mediator* on intent to leave in nurses who have experienced workplace bullying?



Adjusted for: Age, Gender, Race, Education, Years of experience, Years with employer, BMI, Stress score, Unit, Magnet Hospital status, and Shift

Figure 9. Mediation Results for Bullying and Resilience from Modeling of Intent to Leave Unit

Figure 9 presents the mediation results from the path analysis modeling performed in *Mplus* on intent to leave unit. Here there were significant direct effects of bullying severity scores ($b=1.885$; $p<0.001$) and resilience scores ($b=0.042$; $p=0.026$) on intent to leave unit. However, the Sobel test for mediation effects of resilience on intent to leave unit for bullying was not significant ($p=0.706$). In addition, the 95% bias-corrected bootstrap CI includes zero ($-0.035, 0.012$). Therefore, when controlling for personal factors and perceived stress level, resilience does not act as a mediator on intent to leave the unit in nurses who have experienced bullying.



Adjusted for: Age, Gender, Race, Education, Years of experience, Years with employer, BMI, Stress score, Unit, Magnet Hospital status, and Shift

Figure 10. Mediation Results for Bullying and Resilience from Model of Intent to Leave Organization

Figure 10 represents the mediation results from the path analysis modeling performed in *Mplus* on intent to leave organization. Here the direct effects of bullying severity scores ($p=0.834$) and resilience scores ($p=0.112$) for intent to leave organization were not significant. The Sobel test for mediation effects of resilience on intent to leave organization for bullying was not significant as well ($p=0.729$), which was in agreement with the 95% bias-corrected bootstrap CI (-0.165, 0.464). Therefore when controlling for personal factors and perceived stress level, resilience does not act as a mediator on intent to leave organization in nurses who have experienced workplace bullying.

Assumptions across statistical analyses were extensively checked. No variance inflation factor (VIF) exceeded 2.6 indicating that multicollinearity was not an issue. While some histograms of regression residuals suggest possible non-normality, inspection of normal *Q-Q* plots did not suggest substantial departures from normality such that remediation was necessary. Residual plots of studentized residuals compared against predicted values did not indicate violations of linearity or homoscedasticity.

This chapter has reported on the findings from the data analyses. The sample was predominantly female, with a mean age of 42.97 ($SD=11.37$). The majority of the nurses worked the day shift (62.1%). The bivariate relationship between NAQR and MCS was statistically significant ($p<0.001$) with NAQR scores inversely related to MCS scores. However, the relationships were not significant in multivariate modeling or path analysis investigating possible mediation effects. Likewise, the bivariate relationship between NAQR and intent to leave unit was statistically significant ($p<0.001$), however the R^2 is 0.228 indicating that less than a quarter of variation is accounted for in this model. This

relationship remained significant and positive in nature in multiple linear regression and in estimated direct effects in path analysis. Finally, the mediation modeling did not indicate that resilience was a significant mediator in any of the models.

CHAPTER V

CONCLUSIONS

The purpose of this study was to examine the prevalence of bullying in a sample of nurses employed in hospital settings. This study also explored the impact bullying had on nurses' physical health, mental health, and intent to leave the unit or organization. Additionally, this study examined if nurses' resilience mediates the negative effects of bullying on physical health, mental health and intent to leave their position or the organization. In this chapter, the interpretation of the results is discussed along with the limitations of the study. Finally, the implications and recommendations for nursing practice, research, and policy are presented.

This study used the NIOSH model of job stress as a framework to understand the impact of bullying among nurses. This model was simple, but well designed in the inclusion of all relevant variables. The NIOSH model was also used to guide the discussion section, especially the interpretation of findings. Therefore, the findings are presented as stressful job conditions, individual and situational factors and risk of illness.

Interpretation of the Findings

Stressful Job Conditions: Bullying

The prevalence of bullying in this sample of 182 nurses was 40%. Research that has been conducted in the United States has found similar prevalence of bullying. For example Chipps and McRury (2012) found 37% ($N=16$) of nurses were bullied. Other

research that used the NAQR to measure bullying in nurses reported 31% ($N=511$) were bullied (Simons, 2008), and 27.3% ($N=249$) was reported by Johnson and Rea (2009). This study found a much lower prevalence of bullying than reported by Berry et al. (2012) where 75% ($N=197$) of nurses were bullied. The amount of bullying experienced by nurses in this sample was similar to other published studies.

In addition to the NAQR, the survey also asked nurses who perpetrates bullying in the workplace. This study's results are similar to other research that identified RN co-workers as the most common perpetrator of bullying followed closely by nurse leaders. Berry et al. (2012) reported that 44% ($n=88$) of bullying was from staff nurses, 19% ($n=38$) from nurse leaders and physicians only accounted for 6% ($n=12$) of bullying. Higher prevalence was noted by Johnson and Rea (2009) found 50% ($n=22$) of bullying was perpetrated by managers and 38% ($n=17$) originated with staff nurses. Vessey et al. (2009) found 24% ($n=51$) of bullying came from senior nurses, 17% ($n=36$) from charge nurses, 14% ($n=30$) from nurse managers, and physicians were identified as the source of bullying by only 8% ($n=17$) of the sample. These recent research results are different from earlier studies that found physicians accounted for the highest percentage (62%) of bullying (Sofield & Salmond, 2003). It appears that physician bullying has decreased since The Joint Commission (2008) released their report on disruptive behaviors in healthcare. Unfortunately, the same decrease in bullying has not been seen in nurse bullying.

Individual and Situational Factors

Personal factors. The personal factors used in this study were age, education, years of experience, years in position, gender, race and BMI. Within the study sample the mean age of the participants was 42.97 years ($SD=11.37$). The median age of registered nurses in the United States was 46 years in 2008 (DHHS, 2010). It is not surprising that this sample had few male participants (4.6%) ($n=7$), but it is less than expected. In North Carolina 7.7% of nurses were male (NCBON, 2012) and in the United States 7% of registered nurses were male (DHHS, 2010). The registered nurses who participated in the study were predominantly Caucasian (90.3%). In the United States 83.2% of RNs were Caucasian (DHHS, 2010), similarly in North Carolina 83.7% of RNs were Caucasian (NCBON, 2012). The sample population of this study was younger and less diverse than the RN population in North Carolina or the United States.

Experience and education. The RNs who participated in the study had an average of 15.37 ($SD=11.58$) years of experience. The nurses had significantly less time spent in their current position where the mean was 6.93 ($SD=7.34$) years. The nursing education level of sample nurses was equally distributed between those with an associate degree 45.6% ($n=82$) and those with a bachelor's degree 46.1% ($n=83$). The study population had a higher percentage of nurses with associate degrees than the population of RNs in North Carolina, where 31.5% had an associate degree (NCBON, 2012), and the United States, where 36% of nurses have an associate degree education (DHHS, 2010).

BMI. The body mass index (BMI) was calculated using self-reported height and weight of the participants. The BMI ranged from 18 to 45.6 with a mean of 28.16

($SD=6.528$). Based on criteria from the Centers for Disease Control and Prevention (CDC) in this sample of nurses, 1% ($n=2$) were underweight, 34.7% ($n=48$) were in the normal weight range, 34% ($n=47$) were overweight and 29.7% ($n=41$) were obese (CDC, 2011). Within the general population of the United States, 35.7% of adults were obese (Ogden, Carroll, Kit, & Flegal, 2012). The sample of nurses in this study had a lower incidence of obesity than the average American. Studies that examined the BMI of nurses were reviewed for comparison. A study that looked at the effects of a nutrition and exercise intervention found that nurses in the United States had a calculated BMI of 30.5 ($SD= 6.8$) in the intervention group, and 27.6 ($SD =5.4$) in the control group (Speroni, Earley, Seibert, & Kassem, 2012). Smith, Fritschi, Reid and Mustard (2013) examined Canadian nurses BMI with relation to shift work. They found the mean BMI of nurses in the sample ($n=4111$) was 25.7 ($SE= 0.08$) (Smith, Fritschi, Reid, & Mustard, 2013). Nurses in this study had lower levels of obesity than the general population. The mean BMI of the nurses in this study sample fell between the intervention and control group BMI reported by Speroni et al. (2012); but was much higher than the mean BMI of Canadian nurses (Smith et al., 2013).

Individual characteristics. The individual characteristics used in this study were perceived stress level as measured by the Perceived Stress Scale (PSS) and resilience as measured by the Resilience Scale (RS-14).

Perceived stress. The PSS was used to measure nurses perceived level of stress in their lives. The study sample appears to have similar perceived stress levels as the general population. In research that examined nurses' PSS scores, Chiang and Chang

(2012) reported mean PSS scores of 20.3 ($SD= 3.75$) among Taiwanese nurses ($N=314$).

An interventional study that examined nurses' stress using the PSS pre and post participation in a Reiki class reported mean PSS scores of 17.2 ($SD=4.8$) before the class and a mean of 12 ($SD=6.2$) post-intervention (Cuneo et al., 2011). This study sample had lower perceived stress than other studies that have used PSS to measure general stress among nurses. Nursing is known to be a stressful profession. It is surprising that the perceived stress scores were lower than previous findings. This may be related to the high resilience level in this sample.

Resilience. Nurses in this sample had high resilience levels, with the majority of the sample 67.5% ($n=108$) having moderately high (42.5%) or high (25%) levels of resilience. Research that has examined nurses resilience levels using the Resilience Scale (25 item) reported mean resilience scores were 138.1 ($SD=17.26$) (Glasberg, Eriksson, & Norberg, 2007). The mean resilience score from the Glasberg et al. (2007) study was in the moderate level of resilience range according to the scales author (Wagnild, 2011). The mean resilience level from this study of nurses is considered in the moderately high range (Wagnild, 2011). Another study that examined the level of resilience in nurses using a different scale found that 22% of intensive care nurses had high levels of resilience (Mealer et al., 2012). The study sample had moderately high levels of resilience and was similar to other research that examined the resilience level of nurses. This sample of nurses had high levels of resilience, which could explain their lower perceived stress level scores. High levels of resilience may mean this sample of nurses was protected from the stress of bullying behaviors.

Organizational factors. The organizational factors considered in this study were the type of unit, type of hospital and the shift the nurse worked.

Type of unit. The nurses in this study worked in a variety of patient care units including medical-surgical (28%, $n=51$), critical care (18.7%, $n=34$) and the emergency department (12.6%, $n=23$). Examination of bullying prevalence among units revealed that 55% of nurses ($n=9$) in obstetrics reported bullying. It is concerning that 57% of mental health nurses ($n=14$) reported bullying at work. It is difficult to interpret these findings with such a small sub-sample size. However, future research should examine which units have the highest levels of bullying and explore the cause. The medical surgical unit had one of the lower reports of bullying with 30% of nurses ($n=42$) reporting they had been bullied. These findings differ from previous research that found medical surgical units had the highest incidence of bullying (McKenna et al., 2003; Roche et al., 2010). In this study, the highest incidence of bullying occurred in specialty areas. For example, 40% of nurses who worked in the telemetry unit or step down unit reported bullying, but the sample size was small ($n=5$). Nurses in critical care units reported bullying at 40% ($n=27$). Nurses who worked in the operating room, pre-operative area or post-anesthesia unit reported 41% were bullied ($n=17$). These data support previous studies which have found critical care and surgical services have higher incidence of bullying (Efe & Ayaz, 2010; Stanley et al., 2007). Interestingly, in this sample, nurses who worked in the emergency department reported lower levels of bullying 35% ($n=20$) than other units. This finding differs from research reported by Stanley et al. (2007), and Johnson, and Rea (2009).

Type of hospital. The type of hospital where the nurse worked was an organizational factor in the model. The type of hospital was conceptualized as a community based hospital or an urban teaching hospital. In this study, 86.7% (n=157) of the nurses indicated they worked at a community hospital. This is an unexpected finding as the urban teaching facility employed the greater number of nurses among the three hospitals, but did not have the greatest response. Walrafen et al. (2012) used a similar survey methodology where they used several hospitals that were owned by one healthcare system to obtain their sample. Unfortunately, they did not report response rates from the different facilities (Walrafen et al., 2012). There are two likely scenarios to account for this unexpected finding in response rates from different facilities: (a) the participants did not understand the wording of the question, or (b) the nurse managers at the smaller hospitals promoted the study to a greater degree than those managers at the urban teaching hospital. Of interest, 83.6% of nurses reported they worked at a Magnet facility. However, the urban teaching hospital was the only Magnet designated facility.

The shift worked. The shift worked was another organizational factor in this study. Most of the nurses in the sample worked 12-hour shifts, with 62.1% (n=113) reporting they worked the day shift and 37.9% (n=69) worked night shift. Nurses who worked 12-hour night shifts reported a slightly higher prevalence of bullying, 44% versus 37% reported by nurses who worked the day shift. The bullying reported by night shift nurses was more severe because the events were more frequent. Most researchers did not report the prevalence of bullying by shift worked, but Pai and Lee (2011) found no significant differences in verbal abuse, physical abuse or bullying behaviors between

shifts worked. However they found the incidence of sexual harassment increased in nurses who worked night shift (Pai & Lee, 2011). Dewitty et al. (2009) reported conflict was more common during the evening and night shift when compared to the day shift. The amount of bullying may have been less on the day shift because nurse managers are more likely to be present on the unit. Conversely, if the managers were the bully, the incidence of bullying would increase.

Special designation. Another organizational factor considered was the unit or hospital special designation such as Magnet status. In this sample of nurses, 86.3% reported working at a Magnet hospital, 9.3% of the sample did not know their facility's Magnet status, and 4.9% of nurses reported the hospital had no special designation. This sample did not have enough nurses participate that worked for non-Magnet facilities, therefore differences between work environments could not be explored in relation WPB. This study had a larger sample of Magnet employed nurses than the national norm, as only 6% of hospitals have Magnet status in the United States (American Hospital Association, 2013; ANCC, 2013).

Risk of Illness

The outcome measure in the NIOSH model is risk of illness. In this study, risk of illness was conceptualized as physical health, mental health, and intent to leave the unit or the organization. Physical health and mental health are linked together and measured using the SF12, which allows an overall score of health to be interpreted with the components of physical health (PCS) and mental health (MCS). Intent to leave was

measured using two separate questions that used a Likert scale to indicate the likeliness the nurse would leave the unit or the organization.

Physical health. It was hypothesized that a relationship existed between bullying and physical health. Using the NAQR for bullying and PCS for physical health simple linear regression was performed, but the bivariate relationship was not found to be statistically significant ($p=0.15$). Examination of individual factors, individual characteristics and organizational factors and their influence on PCS using multiple linear regression in nurses who have experienced bullying indicated some of the associations were significant with an overall test p -value of 0.019. However, the multiple linear regression model only explained 8.4% of the variation in the PCS. The specific factor that was significant in this model was years on unit and was associated with lower predicated mean PCS scores ($p<0.001$). Age was marginally significant ($p=0.051$) No other factors were significant in the multiple linear regression model with PCS.

Overall, these findings were unexpected. Other nurse researchers have linked bullying with physical symptoms, most commonly headaches, hypertension, gastrointestinal problems and difficulty sleeping (MacIntosh, 2005; Vessey et al., 2009; Yildirim, 2009). This study did not find a relationship with bullying and decreased physical health. The association between years in position and lower PCS was puzzling as years of experience as an RN was not significantly associated with decreased PCS. The findings from this study imply that nurses who have been in their position longer are less likely to experience physical symptoms when exposed to bullying. However, nurses with the same level of experience, but less time in position are more likely to experience

physical symptoms when exposed to bullying. Perhaps nurses who have been in position longer are more secure and able to manage the work demands more effectively and cope with new stressors. This is an area that could be explored in future research. The association with age and lower PCS was reasonable and expected.

The SF12 PCS scoring was based on the participants' perceptions that their general health has limited their ability to perform specific activities during the past four weeks. The specific activities from the survey included the ability to climb several flights of stairs, perform moderate activities such as vacuuming or playing golf, and perform the activities of daily living. Another survey question asked if pain had interfered with normal work or daily activities in the past four weeks. These particular questions may not accurately capture the physical symptoms reported by nurses who were bullied. The physical symptoms reported by bullied nurses in other research include hypertension, gastrointestinal problems, headache, and problems sleeping (MacIntosh, 2005; Vessey et al., 2009; Yildirim, 2009). Hypertension, in the early stages, would not affect one's perception of health. Headaches, gastrointestinal problems and difficulty sleeping may not be disabling enough to alter the PCS score. As the majority of nurses are female, it is important to consider how gender influences perception of health. In a study of diabetics, researchers found that women had a higher perception of their general health. Differences were noticed in the PCS scores between gender, where women had lower PCS scores yet simultaneously rated their general health higher than was indicated by PCS (McCollum, Hansen, Ghushchyan, & Sullivan, 2007).

Mental health. The Mental Health Component Summary (MCS) of the SF12 included the scores from the eight SF12 domain scores and transformed the items into a single score that can be used to measure mental health (Ware et al., 2010). The possible range of scores was 0-100. In this study sample the raw data scores ranged from 6-100 with a mean score of 75.16 ($SD=17.96$). The bivariate relationship between bullying (NAQR) and mental health (MCS) was significant with a p -value of <0.001 . The NAQR scores were inversely related with the MCS indicating that as bullying increased, the predicted mental health score decreased.

An examination of a multiple linear regression model that included individual factors, individual characteristics and organizational factors and their influence on the MCS in nurses who experienced bullying was not statistically significant with an overall test p -value of 0.061. Of the personal factors, years on current unit were associated with lower mean MCS ($b=-3.321, p=0.019$). Higher perceived stress scores were also associated with lower MCS ($b=-1.305, p=0.009$). However, the overall test was marginally significant so that these two findings should be interpreted with caution.

The study found that NAQR was inversely related with MCS in bivariate analysis using simple linear regression. The multiple linear regression model with all factors did not show significant findings on mental health in nurse who were bullied and only a small amount of variation that was explained by the model (5.4%). Many researchers have reported bullying affects the victim's mental health. The most common negative effects of bullying on mental health were increased depression, increased anxiety, and higher levels of stress (Gates et al., 2011; Pai & Lee, 2011; Vessey et al., 2009). In this

sample of nurses, as the severity and frequency of bullying increased, as reflected by an increased NAQR score, the MCS decreased in bivariate analysis, but was not significant in multivariable analyses. A logical association with perceived stress scores and MCS was also discovered. The PSS measures overall stress so would be expected to influence the MCS score.

The MCS measures general mental health. Questions are based on recall of perceptions during the past four weeks. The MCS items ask if emotional problems have caused an inability to accomplish tasks or have caused the respondent to be less careful in work or activities in the past four weeks. Additional MCS items address the frequency the respondent: felt calm and peaceful, had a lot of energy, or felt downhearted and depressed during the past four weeks. The general mental health measure may not capture anxiety or depression specifically associated with WPB.

Research using SF12 and MCS in bullied nurses was not found. However, in a study of Canadian women, researchers found role overload negatively influenced MCS scores. Positive predictors of MCS were working between 30-40 hours a week, positive domestic relations, and high job quality (Glynn, Maclean, Forte, & Cohen, 2009). Therefore, the inverse of these finding may also be true: Women who have low job quality may have lower MCS scores. Bullying could decrease job quality and consequently affect MCS scores. This hypothesis was not specifically tested in this study. The study did find that bullying and overall stress decreased the MCS score in this sample of nurses, but the significance of the decrease for bullying disappeared once accounting for other factors in multivariable analyses.

Intent to leave. The nurses in this sample indicated that 38.4% ($n=61$) were very unlikely to change units in the next 12 months; 17 % ($n=27$) were unlikely to change, 24.5% ($n=39$) were undecided, 11.3% ($n=18$) were likely to leave their unit, and 8.8% ($n=14$) indicated they were very likely to change units in the next 12 months. The relationship between intent to leave the unit and bullying was statistically significant in bivariate analysis ($p<0.001$). However, only 22.8% of the variation in intent to leave the unit scores is accounted for in the model with bullying. It is surprising that bullying does not account for a larger amount of variation in intent to leave unit.

An examination of the personal factors, individual characteristics and organizational factors influence on intent to leave the unit in nurses who experienced bullying in multiple linear regression was found to be statistically significant ($p<0.001$). In this multivariable model, 93.1% of the variation in intent to leave unit was explained. However, none of the personal factors were significantly associated with intent to leave the unit. Resilience level scores were significantly associated with intent to leave the unit, adjusting for the other model predictors ($b=0.042$, $p=0.027$). Greater severity of bullying was also associated with intent to leave the unit ($b=1.884$, $p<0.001$).

This model indicates that nurses with high levels of resilience who experienced bullying were more likely to leave their unit. Higher levels of resilience are associated with psychological well-being and health promoting behaviors (Wagnild, 2009). Nurses who have higher levels of resilience are more comfortable and self-assured, consequently, more likely to leave a negative work environment.

Nurses were also asked about their intent to leave their current employers in the next 12 months. The nurses in the sample indicated that 38.1% ($n=61$) were very unlikely to leave their organization which was very similar to the number who would be very unlikely to leave their unit. The other nurses indicated 20% ($n=32$) were unlikely to leave, 21.9% ($n=35$) were undecided, 6.9% ($n=11$) were likely to leave, and 13.1% ($n=21$) of nurses in this sample were very likely to leave current employer in the next year. The percentage of nurses who were very likely to leave their employer was higher than those who were very likely to leave their unit (13.1% vs. 8.8%).

The bivariate relationship between intent to leave the unit and NAQR was not statistically significant in a simple linear regression ($p=0.339$). The relationship between personal factors, individual characteristics, and organization factors was significant for intent to leave the organization in a multiple linear regression analysis ($p<0.001$). This multivariable model explained 29.1% of the variation in intent to leave the organization. Older age ($p=0.032$) and lower education ($p<0.001$) were associated with intent to leave the organization. No other individual or organization factors were significantly associated with intent to leave organization in the multivariable modeling. Older nurses maybe interested in a work environment with less stress and looking towards retirement.

In this sample, nurses were more likely to leave their unit rather than leave the organization. Within the nursing profession, it is relatively normal for nurses to change units to gain new expertise in caring for a different patient population or to enter a specialty area. It is typical for new nurses to work on a medical surgical floor to gain clinical skills and transfer to a critical care unit, emergency department or surgical

services after they have gained some nursing experience. It is more difficult to leave an employer than to leave a patient care unit because of the associated benefits that could be lost such as medical insurance, paid time off and retirement funds.

Mediation Model

The mediation models did not reveal resilience as a mediator of bullying for physical health, mental health or intent to leave the unit or the organization. Mediation was studied in path analysis models that examined the relationship of the independent variable (IV), NAQR on the dependent variable (DV), PCS, MCS and intent to leave the unit, or the organization. The focus of the model is the relationship between NAQR and the DV also called the direct effect. It was hypothesized that a nurse's level of resilience would significantly alter the direct effect of NAQR on the DV, which would indicate mediation. In this study, the direct effect of NAQR (IV) on the DV was not significantly changed by the indirect effects of resilience in the model.

It was an unexpected finding that resilience was not a mediator of bullying on PCS, MCS, or intent to leave. Nursing research clearly documents a link between bullying and impact on physical health, mental health and intent to leave the unit or organization. As resilience allows a person to respond to adverse situation without experiencing the negative consequences to their health, it was expected that resilience would also decrease the negative effects of bullying. More research is needed to see if these findings are replicated.

Limitations of Study

The correlational cross-section study design allows data collection at one point in time. A limitation of this study design is the findings are descriptive and prediction and causation cannot be determined.

The accessible sample pool was comprised of nurses who were employed at three hospitals in a single healthcare system. Participants were sent an electronic mail to their work electronic mailbox. The researcher envisioned participants forwarding the electronic mail to personal electronic mailboxes so they access the survey at any location. The healthcare system does not allow electronic mail to be forwarded to other accounts. Therefore, business cards were circulated with a tiny Uniform resource locator (URL) printed on the card so nurses could enter a relatively short web address to access the survey. Inability to forward the email may have affected the response rate.

Having nurses who work for one healthcare system could be considered a limitation of this study. The nurses who participated in this study were younger and less culturally diverse than the general nursing population in North Carolina, which may affect generalizability. During the time the survey was released there was a flu outbreak in North Carolina that lasted throughout the time of data collection. This might have affected the response rate as nurses were working extra shifts and with less staff because of the outbreak.

Implications

Nursing Practice

Nurses are the principal caregivers in hospitals and are crucial to providing high quality patient care (National Quality Forum [NQF], 2006). Factors that affect the nursing workforce subsequently affect the quality of patient care. As this study reports, bullying remains a problem within nursing. Several bullying behaviors reported by this sample of nurses directly affect group communication that is necessary to provide quality patient care. Nurses reported their views or opinions were ignored in the workplace. Nurses who have their views or opinions ignored in the workplace are unable to complete their professional obligation to advocate for their patients. This is particularly dangerous if nurses avoid expressing opinions, are reluctant to ask questions, or share observations with other healthcare team members. Nurses in this study reported unmanageable workloads and information being withheld that was necessary to care for their patients. Nurses who feel overwhelmed by the workload or a lack of resources will not be able to perform their essential job responsibilities.

To resolve these issues the nursing profession needs to be at the heart of solving bullying among its members. Several nursing organizations have addressed bullying among nurses these including the ANA and the Association of Critical Care Nurses. One of the limitations of this approach is that many nurses do not belong to a professional organization. Bullying is not a problem that can be solved by a small percentage of nurses. All nurses need to be responsible for their own behavior in order to stop bullying

in the profession. It needs to be very clear which behaviors are acceptable and which are not acceptable.

One of the most difficult areas when discussing bullying is that it is based on the perceptions of the victim. This is not a unique problem, reporting sexual harassment was in the same position 25 years ago. Women learned that they did not have to tolerate lewd comments, unwanted touching or intimidation in the workplace. Nurses do not have to tolerate antagonistic behaviors or a hostile workplace. With a clear message of intolerance of bullying and support systems in place to support victims and reform the perpetrators, the problem of bullying could move toward resolution.

Many nurses reported in the open-ended comments that they were ordered to work below their level of competence in this study. It is not clear how or why this happened. It could be that nurses were asked to perform nursing assistant or housekeeping tasks and were unable to perform their role as an RN; or it could be some other issue. The Institute of Medicine (IOM) report *The Future of Nursing: Leading Change, Advancing Health* specifically recommended that nurses practice to the full extent of their education and training (IOM, 2010). This report was written specifically to address changes required in nursing to handle the future healthcare needs of the U.S. population. More research needs to be conducted to determine what the barriers are to nurses being able to function at their full level of education and confidence.

This study also found that bullying has a negative effect on nurses' mental health in the simple linear regression. Research has found that nurses with poor health have decreased productivity and quality of care (Letvak, Ruhm, & Gupta, 2012). It cannot be

determined from the MCS what symptoms nurses' experience. However, anxiety or depressive symptoms were often cited in research of bullied nurses (Dewitty et al., 2009; Vessey et al., 2009). Nurses who are depressed have a decreased ability to perform their job (Letvak, Ruhm, & McCoy, 2012). It is important that nurses are able to protect patients and provide safe, high quality care. More attention needs to be placed on the mental health of hospital-employed nurses.

This study documented that nurses who are bullied are more likely to leave their unit. Nursing turnover causes instability on patient care units and causes significant issues for healthcare systems, and the patient they serve. According to the Robert Wood Johnson Foundation (RWJF) the financial cost of replacing a registered nurse ranges from \$24,000 to over \$64,000 (RWJF, 2009). Another non-monetary, but significant cost of nurse turnover is the loss of nursing expertise at the bedside. This cost is more difficult to quantify but directly impacts the healthcare system and the quality of patient care that is delivered (Spivak et al., 2011).

Turnover within the nursing workforce will occur as nurses' advance their careers, complete their education or relocate. Nursing turnover associated with bullying is not acceptable. Healthcare organizations have attempted to address the problem of bullying through zero tolerance programs. Based on continued reports of bullying, it does not appear that these programs are working. Organizations need to be strong and consistent in their stance against bullying, but also to offer reformation to the perpetrator. A valued employee should be coached to change their behavior just as they would be coached through any workplace deficiency. There must also be a method to report

bullying behaviors that side steps the normal chain of command. Several nurses in this study voiced concerns about reporting bullying for fear of getting someone in trouble or fear of retaliation. Human resources should be on the forefront of changing the culture within organizations. Employee assistance programs could be used to support victims of bullying.

This study found that nurse leaders are major contributors to bullying behavior in the workplace. The very leaders that should help the profession find ways to end the negative work culture are spreading the inappropriate behaviors. The fact that nurse leadership was identified as a common perpetrator of bullying indicates that the problem is endemic throughout the organizational structure of the healthcare system and not confined to patient care units. Training for all leaders that includes sensitivity and awareness of bullying should be required. This training should detail a standardized response when a complaint of bullying is received, as all employees should be treated the same.

Research

Nursing research needs to be conducted on bullying and its effects on the nurse, the profession, the organization and most importantly patient outcomes. It is troubling that the prevalence of bullying has not significantly changed in spite of significant research that has been conducted to understand bullying. There may be a paradoxical affect associated with reports of bullying. As nurses are more aware of bullying in the workplace, they may recognize the phenomenon of bullying and report it more frequently. It is not possible to know if this has happened, but research needs to be

conducted to understand the perceptions of nurses and their experience in order to understand the true prevalence of bullying.

The NIOSH model is an effective model to guide research on bullying behaviors that focus on outcomes. There have been many terms used to describe the same experience of bullying. Researchers should clearly describe the behaviors that are addressed in their studies. An area that needs further exploration is the link between nurse bullying and the impact on patient care. Most studies in the United States have examined bullying in nurses who work at acute care hospitals. In this study, resilience was not found to mediate the negative effects of bullying. More research specific to what may mediate the negative effects of bullying is needed. Examination of bullying in all nursing workforce settings would be beneficial to the science.

Policy

Organizations such as the American Nurse Association and The Joint Commission have issued edicts, which address bullying in the healthcare workforce. Based on this study's findings these edicts have not been effective in decreasing WPB among nurses. Joint Commission issued a sentinel event alert in 2008 that declared bullying fosters medication errors, decreases patient satisfaction and contributes to adverse patient outcomes (Joint Commission, 2008). They required health care facilities to adopt a code of conduct and for the leadership team to implement a process for managing bullying. The process for managing bullying included "zero tolerance" policies. Healthcare facilities have implemented these changes without influencing the prevalence of nurse on nurse bullying. Zero tolerance policies may have made it harder

for nurses to report bullying behavior. In addition to the mandatory items, The Joint Commission also suggested ten action items that could be implemented. The optional actions include education of team members on appropriate professional behavior, holding team members accountable for their behavior, providing training and coaching for leaders and managers in relationship-building and collaborative practice. Other suggested actions include ongoing assessment of the staff's perceptions of bullying behaviors and the work environment, and developing a reporting or surveillance mechanism for detecting bullying behaviors and develop intervention strategies. This study showed nearly half of nurses experienced bullying. The incidence of bullying among nurses has actually increased according to nursing research since *Behaviors that Undermine a Culture of Safety* was released.

The Affordable Care Act (ACA) Section V addresses the healthcare workforce within the United States. The National Health Care Workforce Commission was appointed in 2010, shortly after the ACA was enacted into law. Unfortunately, the Commission has been unable to work or meet until Congress released the funds for the Commission (McDonough, 2013). It is not clear that the Commission will address work environment and bullying, but they do have the power to study this problem and develop policies.

The Joint Commission was clear in their identification of the problem of bullying in the workplace. The required changes to leadership have not affected the prevalence of nurse bullying. Since zero tolerance policies do not seem to be working to decrease bullying among nurses; the ten items that were suggested actions from The Joint

Commission should also be required. This would mandate the development of leaders so they are able to more effectively build relationships and collaboration among employees. Consistent surveillance of the professional culture, along with monitoring the perceptions of employees would provide ongoing assessment of the issues. With this information, problems could be identified and addressed early. Development of a reporting system that does not require employees to go through the normal chain of command would provide a safe manner for reporting and decrease fear of retaliation.

Summary

Bullying continues to be a common problem in nursing. This study adds to the body of knowledge regarding nurse bullying by confirming it continues and effects nurses' mental health and intent to leave. In addition, this study revealed that while nurses most often bully each other, nurse leaders also bully employees. This study explored how nurses' resilience protects the nurse from the negative effects of bullying. Resilience was not a mediator of bullying. More research is needed to determine what factors protect nurses from the negative effects of bullying. Future research is needed with a large sample size that included different types of care settings and nurses at all levels of organizations. Nurses need to develop strategies in conjunction with other stakeholders to stop bullying among nurses. Health care organizations need to address bullying in the workplace as the workplace should not cause illness and decreased health.

In conclusion, in spite of research and formal policy recommendations, bullying is still present in the hospital nursing work environment. Obviously, WPB is well entrenched in the nursing culture and will not be eliminated with one strategy. It is clear

more research and policy change is needed to address this serious issue. In order to decrease nurse on nurse bullying nurses will need to lead the movement.

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APPENDIX A

SURVEY

Nurse bullying survey copied from Qualtrics

This survey is part of a dissertation research project. The purpose of the study is to examine bullying in North Carolina nurses who are employed in hospitals. This study will also explore how a nurse's level of resilience protects a nurse's health when exposed to bullying in the workplace. An additional goal of the study is to determine if nurses that are bullied are more likely to leave their unit or the organization. Time required 10-20 minutes; unless you choose to add comments. The Institutional Review Board of the University of North Carolina at Greensboro, and the Institutional Review Board at Forsyth Medical Center have determined that there is minimal risk. If you have questions, want more information or have suggestions, please contact Susan Letvak PhD, RN who may be reached at 336-256-1024. If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Compliance at UNCG toll-free at (855) 251-2351, Forsyth Medical Center Institutional Review Board at (336) 718-5964 or the Novant Health Alertline (800) 350-0094. There is no compensation offered for completing survey; however the results from this study may benefit the nursing profession by learning more about bullying in the workplace. There is no direct benefits to participants in this study. The survey does not ask for identifying information, all data will be kept on password-protected computers. All information obtained in this study is strictly confidential unless the law requires disclosure. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protection of internet access. You have the right to refuse to participate in this study or withdraw from this study at any time without penalty, it will not affect you in any way. Please be sure to close your browser when finish so no one will be able to see what you have been doing. You have the right to discontinue the survey at any time by closing the survey and web browser. Click on the "Accept " button below to indicate you have read and fully understand this consent and agree to participate in this study by answering the survey questions. By clicking on "accept" below you are agreeing that you are 18 years of age or older and are agreeing to participate in this study. Thank you for your consideration.

Click on the Accept button to indicate you have read this consent and agree to participate in this study by answering the survey questions.

- ☐ Accept
- ☐ Decline

What is your primary title and responsibilities?

- ☐ RN-direct patient care
- ☐ RN- supervisor or manager
- ☐ LPN or LVN- direct patient care
- ☐ LPN or LVN-supervisor or manager
- ☐ CNA-direct patient care
- ☐ CNA-supervisor or manager
- ☐ Other _____

What type of unit do you work on?

- ☐ Medical Surgical
- ☐ Telemetry or step-down
- ☐ Critical care unit
- ☐ Pre-op, OR or PACU
- ☐ Emergency department
- ☐ Special procedures (cath lab, endo, radiology)
- ☐ Mother/baby (OB)
- ☐ Mental health
- ☐ Out-patient services
- ☐ Other (please list) _____
- ☐ Pediatrics

Which shift do you work most frequently?

- ☐ 12 hour days
- ☐ 12 hour nights
- ☐ Rotating 12 hour shifts
- ☐ 8-10 hour days
- ☐ 8-10 hours evenings or nights
- ☐ Other (please describe) _____

What type of hospital do you work at?

- ☐ Community hospital
- ☐ Teaching hospital (with medical residents)

Does your hospital or unit have any of the following designations?

- ☐ Magnet status
- ☐ Beacon award
- ☐ NCNA Hallmarks of Healthy Workplace
- ☐ Don't know
- ☐ None

How many years have you been a nurse? (example 2.5) (Write in text)

How many years have you worked on your current unit? (example .75) (Write in text)

What is your highest level of nursing education?

- ☐ Associate degree
- ☐ Diploma
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ DNP
- ☐ PhD
- ☐ CNA
- ☐ LPN or LVN

What is your highest level of education? (Write in text)

Please read the following statements. Select the item which best indicates your feelings about the statement.

I usually manage one way or another.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

I feel proud that I have accomplished things in life.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

I usually take things in stride.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

I am friends with myself.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I feel that I can handle many things at a time.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I am determined.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I can get through difficult times because I've experienced difficulty before.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I have self-discipline.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I keep interested in things.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

I can usually find something to laugh about.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

My belief in myself gets me through hard times.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

In an emergency, I'm someone people can generally rely on.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

My life has meaning.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

When I am in a difficult situation, I can usually find my way out.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

The following questions ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. In the last month, how often have you been upset because of something that happened unexpectedly?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Fairly often
- ☐ Very often

In the last month, how often have you felt that you were unable to control the important things in your life?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Fairly often
- ☐ Very often

In the last month, how often have you felt nervous and "stressed"?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Fairly often
- ☐ Very often

In the last month, how often have you felt confident about your ability to handle your personal problems?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Fairly often
- ☐ Very often

In the last month, how often have you felt that things were going your way?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Fairly often
- ☐ Very often

In the last month, how often have you found that you could not cope with all the things that you had to do?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Fairly often
- ☐ Very often

In the last month, how often have you been able to control irritations in your life?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Fairly often
- ☐ Very often

In the last month, how often have you felt that you were on top of things?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Fairly often
- ☐ Very often

In the last month, how often have you been angered because of things that were outside of your control?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Fairly often
- ☐ Very often

In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Fairly often
- ☐ Very often

The following behaviors are often seen as examples of negative behaviors in the workplace. Over the last six months, how often have you been subjected to the following negative acts at work?

Someone withholding information which affects your performance

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Being humiliated or ridiculed in connection with your work

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Being ordered to do work below your level of competence

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Having key areas of responsibility removed or replaced with more trivial or unpleasant tasks

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Spreading of gossip or rumors about you

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Being ignored or excluded

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Having insulting or offensive remarks made about your person (i.e. habits and background), your attitudes or your private life

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Being shouted at or being the target of spontaneous anger (or rage)

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Intimidating behaviors such as finger-pointing, invasion of personal space, shoving, blocking/barring the way

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Hints or signals from others that you should quit your job

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Repeated reminders of your errors or mistakes

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Being ignored or facing a hostile reaction when you approach

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Persistent criticism of your work and effort

- Never
- Now and then
- Monthly
- Weekly
- Daily

Having your opinions and views ignored

- Never
- Now and then
- Monthly
- Weekly
- Daily

Practical jokes carried out by people you don't get along with

- Never
- Now and then
- Monthly
- Weekly
- Daily

Being given tasks with unreasonable or impossible targets or deadlines

- Never
- Now and then
- Monthly
- Weekly
- Daily

Have allegations made against you

- Never
- Now and then
- Monthly
- Weekly
- Daily

Excessive monitoring of your work

- Never
- Now and then
- Monthly
- Weekly
- Daily

Pressure not to claim something which by right you are entitled to (e.g. sick leave, PTO, or time off during holidays)

- Never
- Now and then
- Monthly
- Weekly
- Daily

Being the subject of excessive teasing and sarcasm

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Being exposed to unmanageable workload

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Threats of violence or physical abuse or actual abuse

- ☐ Never
- ☐ Now and then
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Bullying is a situation where an individual perceives that they are on the receiving end of negative actions from one or several persons, and the individual has difficulty defending themselves against these actions. Bullying is NOT a one-time exposure to negative behaviors.

Using the above definition; have you have been bullied at work over the past six months?

- ☐ No
- ☐ Yes, but only rarely
- ☐ Yes, now and again
- ☐ Yes, several times a week
- ☐ Yes, almost daily

Have you witnessed co-workers being bullied?

- ☐ yes
- ☐ No

Have you participated in bullying of co-workers?

- ☐ Yes
- ☐ No

If you have experienced or witnessed bullying who is bullying?

- ☐ RN's
- ☐ Physicians
- ☐ Nursing Leadership
- ☐ Co-workers in other departments
- ☐ Visitors
- ☐ LPN's
- ☐ NA's
- ☐ Patients

How likely are you to change units in the next 12 months?

- ☐ Very Likely
- ☐ Likely
- ☐ Undecided
- ☐ Unlikely
- ☐ Very Unlikely

How likely are you to change employers in the next 12 months?

- ☐ Very Unlikely
- ☐ Unlikely
- ☐ Undecided
- ☐ Likely
- ☐ Very Likely

What is your age? (write in text)

What is your gender?

- ☐ Male
- ☐ Female

What is your race/ethnicity?

- ☐ Caucasian or White
- ☐ Black or African American
- ☐ Hispanic or Latino
- ☐ American Indian
- ☐ Asian
- ☐ Other _____

What is your height? (Write in text)

Feet and inches

What is your weight? (Write in text)

The following questions asks for your views about your health. This information will keep track of how you feel and how well you are able to do your usual activities. Please choose the box that best describes your answer.

In general, would you say your health is:

- ☐ Poor
- ☐ Fair
- ☐ Good
- ☐ Very Good
- ☐ Excellent

The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

	Yes, limited a lot	Yes, limited a little	No, not limited at all
Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf			
Climbing several flights of stairs			

During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
Accomplished less than you would like					
Were limited in the kind of work or other activities					

During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	All the time	Most of the time	Some of the time	A little of the time	None of the time
Accomplished less than you would like					
Did work or other activities less carefully than usual					

During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks...

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
Have you felt calm and peaceful?					
Did you have a lot of energy?					
Have you felt downhearted and depressed?					

During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?

- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

Is there any information you would like to share about nurse bullying in the workplace?

Thank you for completing this survey. Your participation is appreciated!

APPENDIX B

RECRUITMENT LETTER

Dear Nursing professional:

My name is Penny Sauer; I am a Registered Nurse and a graduate student pursuing my PhD at the University of North Carolina at Greensboro. My dissertation research is on nurse bullying. As you probably know, the phrase “nurses eat their young” has been around for a long time in the nursing profession; I want to know if bullying still occurs and how nurses deal with bullying. Research has shown that bullying affects a nurse’s physical and mental health and may cause a nurse to leave the unit or the organization. Research on nurse bullying often focuses on eliminating the bullying behavior.

The purpose of this study is to:

1. Examine workplace bullying among North Carolina nurses who work for hospitals.
2. To determine if a nurse’s personal level of resilience alters the effects of bullying on the victims physical and mental health.
3. Discover if nurses who are bullied are more likely to leave their unit or the organization.

Participants must be a nurse employed at Novant Health System.

It is very important that all nurses participate, whether they have been bullied or not. By having all nurses participate, we will be able to obtain an accurate picture of how much bullying occurs among nurses

All information will be collected using a web-based electronic survey. The survey will take 10-20 minutes to complete, however if you chose to include comments the time to complete may be longer. Informed consent to participate will be assumed upon completion of the survey.

The responses are anonymous and no identifying information will be collected. A summary of the results will be presented to the Professional Practice Council and the Research Council in the spring of 2013.

I am sending you this letter hoping you will participate in the study. Please click on the link below to open another window for the survey.

<http://tinyurl.com/NurseBully>

Thank you for your consideration.

Penny Sauer PhD(c), RN, CCRN, CNE

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919-698-8388

Principal Investigator

Susan Letvak PhD, RN, FAAN

Associate Professor and Interim Department Chair

Adult Health Nursing Department

School of Nursing

APPENDIX C

LIST OF ACRONYMS

Abbreviation	Full name
ANA	American Nurses Association
BLS	Bureau of Labor Statistics
BMI	Body mass index
CDC	Centers for Disease Control and Prevention
CI	Confidence interval
DHHS	Department of Health and Human Services
FIML	Full-Information Maximum Likelihood
ICN	International Council of Nurses
IPRC	University of Iowa Injury Prevention Research Center
MCS	Mental health component summary of SF-12
NAQR	Negative Acts Questionnaire Revised
NCBON	North Carolina Board of Nursing
NCLEX	National Council Licensure Examination
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PCS	Physical component scale of SF-12
PSI	Public Services International
PSS	Perceived Stress Scale
PTSD	Post-traumatic stress syndrome
RWJF	Robert Wood Johnson Foundation
RN	Registered nurse
RS14	Resilience Scale -14 items
<i>SD</i>	Standard deviation
SF-12	Short Form 12 item health survey
WBI	Workplace Bullying Institute
WHO	World Health Organization
WPB	Workplace bullying
WPV	Workplace violence